











AIR FORCE HANDBOOK

106th Congress • Second Session









Department of the Air Force

Washington, DC



The United States Air Force is unquestionably the premier aerospace force in the world. We are a combat-proven, mission-focused, decisive fighting force. From combat operations around the world and standing nuclear alert to humanitarian and disaster relief efforts, the Air Force is focused on meeting a wide range of National Security challenges. Simultaneously, we are preparing for an unpredictable array of emerging threats to include weapons of mass destruction, terrorism, and information warfare.

In order to respond to this dynamic security environment while at the same time meeting heightened deployment requirements with a shrinking force structure, the Air Force has vaulted ahead with two major transformations that form the foundation of our strategic plan for the coming decades. We have transformed into a lighter, leaner, and more lethal Expeditionary Aerospace Force, and have leveraged technology and innovation to develop leap-ahead capabilities in both offensive and defensive systems. Both of these transformations depend on an increased and seamless aerospace integration, and our strategic focus continues to carefully integrate and balance competing priorities. We put people first, emphasize readiness, and continue to sustain balanced, time-phased modernization and infrastructure programs. From aircraft modernization, precision munitions, and space systems to critical infrastructure and quality people our priorities reflect our belief that the key to success is an integrated system of systems.

As a resource for the Members of the 106th Congress, this handbook features a convenient almanac format while outlining a selection of some of your Air Force's major priorities. We hope you find it useful, and stand ready to discuss our vision for the future, and our winning strategy for achieving that vision.

F. Whitten Peters

Acting Secretary of the Air Force

Wickael E. Fran General, USAF Chief of Staff

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Introduction

The United States Air Force enters the 21st Century as the most powerful, swift and flexible military force in the world. Aerospace power was born in America with the Wright brothers and was proven decisive in combat by American commanders who understood the imperative of dominating the skies: Mitchell, MacArthur, Eisenhower, Nimitz, Arnold, and many more. Aerospace power became America's unique asymmetric advantage.

For more than fifty years, the Air Force has been the nation's primary provider of aerospace power. Today, aerospace power gives the nation a strategic advantage and is its most rapid instrument of military choice. It is aerospace power that has made it possible for our nation to lead critical security commitments, while remaining ready to engage rapidly anywhere on the globe.

Everything we do in joint military operations requires control of air and space. Without aerospace power, our joint forces could not effectively deploy, fight, or win. With aerospace power, joint forces can secure our objectives quickly with minimum loss of life. We are a combat- proven, mission-focused, decisive fighting force. The following paragraphs outline how your Air Force, with continued support from Congress, will organize, train, equip, and operate in the coming years.

Aerospace Power in the Geostrategic Environment

World events over the past decade have highlighted the value of aerospace forces.

They were the conclusive instruments of military power in the three major conflicts of the last decade—the Gulf War, Bosnia-Herzegovina and Kosovo. Throughout the 1990s, aerospace power delivered results not only in combat but in many different types of operations: providing presence around the world to shape the security environment; flying relief supplies into areas struck by disaster; delivering aid to nations and peoples in need; patrolling no-fly zones over Iraq and Bosnia-Herzegovina; providing awareness with space assets; and standing nuclear alert. These are just a few of the examples of how America has used its aerospace power.

Today, our national security policy relies on the steady engagement of air forces in several regions. While the other services use their aviation arms primarily to assist their principal forces, the Air Force provides the essence of our nation's aerospace power.

The Air Force is preparing for a range of potential threats that will vary in character and intensity as the 21st century unfolds. A hostile state actor, weapons of mass destruction, cyberterrorism and a heightened need for defense of the American homeland: all are possible challenges in the future. Security can be fragile. Tomorrow's weapons have the potential to be devious and destructive. New threats can emerge quickly, and our ability to counter them must never be taken for granted.

Given the uncertainty and diversity of these threats, aerospace power, with its unique capabilities, will be more important than ever in carrying out America's security goals. First, aerospace power is farreaching. Our aircraft can reach any point on the globe within hours, with the

flexibility to supply relief or to produce combat effects. Second, it is a lethal fighting force. We can control enemy maneuver in the battlespace and find and destroy targets with great precision. Third, aerospace power is vigilant. Airmen link aircraft, satellites and information systems to create global situational awareness. Vigilance takes many forms, from security forces patrolling the base perimeter to nuclear forces on alert. These three characteristics combine to make aerospace power a highly flexible, powerful military force — indispensable to our nation.

Our Focus

The United States Air Force defends the United States and protects its interests through aerospace power. Our fundamental capability is to dominate the aerospace realm to ensure freedom from attack, freedom to maneuver and freedom to attack. This capability stems from our core competencies: aerospace superiority, global attack, precision engagement, information superiority, rapid global mobility, and agile combat support. Our heading stays constant: the Air Force vision of global reach, global power and global vigilance is the guiding principle behind our strategic plan and budget programs for aerospace power.

Aerospace power cannot be defined just as fighters, bombers or satellites. Aerospace power comes from talented, trained people employing a combination of systems and capabilities. It starts with our ability to operate out of austere bases—and that requires constant attention to the fundamentals of food, shelter, force protection, communications, airfield and mobility operations, and civil engineering.

It includes the world's most capable air mobility assets and infrastructure, empowering the global reach capability without which forces and equipment could not move onto forward bases. At the next level, aerospace power requires Intelligence, Surveillance and Reconnaissance (ISR) assets in space and in the air that are interoperable and that can communicate information back to centers where data can be fused and commanders can use that fused information to command their forces and the battlespace. The constant requirement for data, communications, and systems that turn data into information, in turn, requires capabilities that run the gamut from prediction of solar weather to satellite command and control to computer network defense. What makes the Air Force such a flexible and effective tool is our focus on maintaining a balanced aerospace force that provides the full range of capabilities required to put bombs on target or to rapidly deliver humanitarian supplies.

In one contingency, our primary contribution may be C-17s delivering relief supplies. But as important as the C-17 is to this operation, it would be of little use without the material handling equipment that allows it to be loaded and unloaded. Moreover, relief missions depend on layers of support from information systems, communication satellites, weather, navigation, and air refueling that come together to form an Air Force unique capability: an air bridge. Similarly, the B-2 dropping the Joint Direct Attack Munition (JDAM) is an outstanding capability. But the B-2 cannot perform that mission without targeting data, which depends on our ISR and communications infrastructure, as well as the Global Positioning System (GPS) which, in turn, requires a supporting infrastructure of space

launch ranges and launch vehicles.

Our Fiscal Year 2001 budget program is based on sustaining our decisive fighting force through a balanced program that pays attention to all the systems required to perform our mission, modernizes our systems, takes advantage of innovation, and prepares for the challenges of the future. Most importantly, we are providing better support for our most valuable assets — our people.

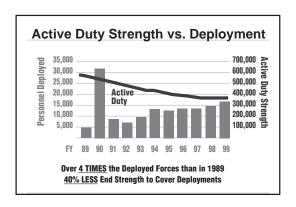
The Air Force Leads Defense Transformation

The Air Force's legacy of organizational and operational flexibility leave it prepared for the challenges of the 21st Century. As security goals shifted in the 1990s, we vaulted ahead with two major transformations that greatly increased our decisive power projection capabilities. These transformations—one organizational, the other a result of the ongoing revolution in military affairs, form the foundation of our strategic plan.

The Air Force has always been an expeditionary force: going "over there," to Europe, the Pacific, Southeast Asia, or the Persian Gulf region to join with allies and defeat adversaries. Since the early 1990s, the Air Force has downsized by more than one-third and cut overseas basing by two-thirds. We retired older Cold War force structure and emerged as a lighter, leaner, and more lethal force. Bombers designed to carry nuclear weapons now carry precision-guided conventional munitions. A tanker force designed to support nuclear operations became the backbone of overseas force deployment. Never in history have

aerospace forces demonstrated their flexibility with greater clarity.

But during the downsizing, contingency operations multiplied and organizational strain emerged. Soon the Air Force was engaged in many times as many operations as during the Cold War — we were 40% smaller than our 1987 levels, but much busier. Like marathon runners, we had to find the right pace. First, the Air Force transformed itself into an expeditionary aerospace force configured for the full spectrum of global operations. In response to seemingly irreconcilable stresses, the Air Force increased its expeditionary



capabilities so that we could both deploy forces faster, and be able to keep up a constant presence, for years when necessary, to fulfill long-term multi-national commitments. We did this using forces that were structured to fight and win two major theater wars.

The new Expeditionary Aerospace Force (EAF) concept enables the Air Force to meet the Nation's increased demand for deployed forces. Without this reorganization, we

could not sustain that demand with the force levels we have today. EAF allows us to provide tailored forces to regional commanders, while keeping the force trained and ready to meet major commitments. But most importantly, it gives our people more predictable deployment schedules, adding needed stability to their family lives and career paths. Equally important, EAF allows us to make more effective use of the Guard and Reserve, reducing the operations tempo for all our forces. The new concept works by designating ten packages of our forces known as Aerospace Expeditionary Forces (AEFs) - and rotating two at a time to be on call or deploy to regional hotspots. It also provides for five rotating mobility headquarters units, to meet demands for airlift. The reorganization required for this transition is largely complete. However, we must continue exercises and initiatives to improve our expeditionary capability by reducing deployment times, improving communications and en route planning, streamlining equipment loads and honing our ability to operate from austere locations.

The second major transformation emerged in the last decade when the Air Force became a stealth-enhanced, all-weather, day/night, precision force. In the 1990s, Americans became accustomed to seeing gun camera video of precision-guided bombs hitting buildings, bridges and tanks. Laser-guided bombs debuted in the early 1970s, but in 1991 just 9% of the weapons delivered by aircraft in Desert Storm were precision weapons, and only the F-117, with two bombs on board, was able to penetrate heavy air defenses to drop these weapons. Just four years later, in 1995, more than 90% of the bombs dropped during Operation Deliberate Force were precision-guided

weapons. In 1999, the stealthy B-2, flying from the United States, with 16 JDAMs on board hit multiple targets at night, in all kinds of weather in its combat debut over Kosovo and Serbia. In addition, B-52s fired GPS-guided Conventional Air Launched Cruise Missiles (CALCMs) hundreds of miles with great accuracy. Our fighter aircraft also dropped precision laser- guided bombs when weather permitted, and we were prepared to use laser designators from the Predator Unmanned Aerial Vehicle (UAV) to enable laser- guided bombs to be dropped through the clouds onto intended targets. In short, during Kosovo, all our attack platforms were able to hit multiple targets per sortie with great precision and much-reduced collateral damage. Past air commanders could only dream of the level of accuracy and reduced collateral damage that we achieved in Kosovo.

But the precision revolution also has costs. First, is the cost of integrating our new precision weapons onto our existing platforms — in many cases this requires extensive modifications. Now that we can bomb at night, we must also be able to fly safely at night, and that means installing night vision goggles and related lighting into all our combat aircraft. Precision weapons also require precise data on the location of targets — data that today must come from operations centers, satellites, UAVs, and supporting aircraft. This in turn drives a requirement for linking our aircraft together through high-speed digital networks and for better on-board targeting systems. We must also complete the integration of precision weapons into our Guard and Reserve aircraft — for EAF and precision to work, every strike aircraft must be capable of dropping precision ordnance. Finally, we must also invest in a suite of capabilities and training

to shorten the time it takes to identify and strike targets from hours to minutes.

Your Air Force is funding the programs required to move these two critical transformations to the next level. As we move forward, we will continue to define the next steps in this revolution, and we will ensure that this transformation has many more cycles. Making our force stealthy will allow us to protect the force from evolving counter-air systems. New munitions, like the Small Smart Bomb and Low Cost Autonomous Attack Systems (LOCAAS) on stealthy platforms, will extend all-weather, day/night, and stand-off capabilities and will provide better capability against moving targets. They will also further minimize collateral damage and enable many more targets to be destroyed with a single sortie. Real time, adaptive targeting will combine with stealth and precision to take this revolution to a new level of combat power.

Both of these major transformations depend on increased aerospace integration. Air and space are seamless. We operate aircraft and spacecraft optimized for different environments, but the art of commanding aerospace power lies in integrating systems to produce the exact effects the joint force commander needs. To meet this need, we have changed our command organization, established a Space Warfare Center and an Aerospace Basic Course, and added space training to the air combat training given at our Weapons School. Most importantly, we are putting air and space operators into all our key commands and training courses. We are also investing in the information infrastructure to further link air and space platforms and testing those links in exercises and experiments. This year, we formed an

Aerospace Integration Center at Nellis AFB, NV, where younger officers will learn how to employ and command the totality of aerospace forces. Today, our innovations are bearing fruit -- the Air Force is an integrated expeditionary aerospace force.

Operation Allied Force: Total Success...and Forging the Way Ahead

Expeditionary operations and precision, all-weather strike converged in the spring of 1999 when NATO airpower compelled Yugoslavia to remove military forces from Kosovo. For the Air Force, Operation Allied Force was equivalent to a major theater war.

We proved expeditionary aerospace power was decisive. From the operational perspective, airmen damaged over 85% of critical infrastructure targets and attacked more than 850 Yugoslav army ground mobile targets (such as tanks, artillery pieces and trucks.) From the strategic perspective, aerospace power demonstrated NATO's might and resolve to Serbian leaders and in the end, Serbia complied with NATO demands.

The success of Operation Allied Force stemmed from our long-term investment in aircraft modernization and stealth, as well as a range of precision, near-precision and stand-off weapons; real-time communications; UAVs, space systems and ISR aircraft. We gleaned many insights from this conflict, and they are reflected in the budget and program now before the Congress.

- Expeditionary operations worked. With seeming ease, our airmen deployed to more than 20 expeditionary bases, bringing with them the force protection, logistics, sustainment, and communications systems that supported expeditionary combat operations.
- Reachback worked. Satellite communications enabled warfighters to reach back to the United States for real-time information and analysis, while avoiding the need to deploy such systems. By reaching back to CONUS for real-time support, theater forces were both leaner and better supported than if we had deployed CONUS forces and their equipment to Europe.
- Logistics worked. Depots surged and provided some 500,000 additional hours of work. With Air Mobility Command's worldwide express package delivery system, 93% of replacement parts got to forward expeditionary bases in Europe in an average of just 3.7 days. The engaged force averaged a 92% mission capable rate, much better than the peacetime average, because it had adequate parts and a full complement of experienced maintenance personnel.
- Technology worked. The many areas where technology gave us great advantages are the same areas that offer us the chance to modernize and improve our forces, gaining greater capability and saving dollars. The most promising of these are high priorities in this year's budget submission.

While individual weapons systems were hailed in the press for their capabilities, it was the successful integration of a broad range of weapons systems and supporting aircraft and space systems that won the day over Kosovo. While the world marveled at JDAM, the war could not have been won

without the use of proven precision munitions guided by laser, electro-optical, and inertial guidance systems. Success came from understanding how our weapons systems complemented each other and blended together into a balanced fighting force with capabilities that matched requirements. The synergy that resulted from combining air, space, and information operations allowed NATO to attack strategic, operational, and tactical targets, day and night, and often in adverse weather conditions, within hours of being identified. Having said all that, the greatest advantage we have is our outstanding people.

Decisive Fighting Force

Our airmen are a national treasure—they are a combat-proven, decisive, fighting force. They perform superbly wherever they are, whoever they are: the crew chief maintaining an F-16 for combat operations from Aviano AB, Italy; the C-17 loadmaster flying all over the world from Charleston, South Carolina; the captain and his wingman deploying from Alaska to Korea; the lieutenant flying satellites at Schriever AFB, Colorado; or officers standing alert at a Minuteman missile launch control center near Minot, North Dakota. Airmen are motivated, trained and ready to serve their country.

But their jobs are not easy. The uniformed Air Force of the year 2000 is the smallest in history: 358,000 active-duty members, plus 107,000 in the Air National Guard and 74,000 in the Air Force Reserve for a total of 539,000. On any given day, 90,000 airmen — almost one-sixth of the Total Force — are operating forward at 12 overseas bases and 16 forward operating locations.

The personal commitment of our men and women deserves an equal commitment from the Air Force, the Congress, and the American people. People are the key to the Expeditionary Aerospace Force, and we must do all we can to give our fighting forces what they need to carry out their mission.

People

People are our top priority. Because multiple deployments, crisis responses and aging equipment are stressing our manpower levels, we know we need to move additional manpower into the forces directly supporting the EAF. We moved 2,640 positions into the EAF in FY00, and this budget will move 3,180 additional authorizations in FY01. In addition, we recognize that unfilled manpower authorizations are of no use, so we have requested 300 new manpower positions for recruiters in FY01. We have also commissioned a major study of our end strength requirement and are prepared to request additional end strength, if needed.

Recruiting and retaining the highest quality men and women are among our greatest challenges in the current economic environment. To date, we have been able to recruit men and women of extremely high caliber — 99% have high-school diplomas. However, during Fiscal Year 1999, the Air Force fell short of its recruiting goal for the first time in 20 years. To meet this year's goal, we are increasing our recruiter force and launching new efforts in paid advertising.

Retention has also declined. The Air Force needs to retain highly trained people; but the high operations tempo, the strong civilian job market, and previous dissatisfaction with pay and retirement benefits have hurt both enlisted and officer retention.

The bottom-line for retention is that quality of life counts. The pay and compensation package Congress and the administration approved in 1999 and the restoration of 50% retirement benefits sent the right message. In addition, quality of life initiatives at the base level are essential. We realize that while we recruit individuals, we retain families. Especially with so many military members deployed, our programs in spouse employment, personal financial management assistance, childcare and youth centers, and commissaries and military exchanges are tangible commitments that make a difference in quality of life every day. Our Dormitory Master Plan to improve facilities is well underway, and we have also funded improvements to family housing through our Housing Master Plan. Additional DoD support for market-based basic allowance for housing (BAH) will reduce out-of-pocket expenses for our families assigned to high cost areas. TRICARE, which was fully implemented in June 1998, continues to receive our constant attention, with focus on customer satisfaction. While surveys indicate that satisfaction is increasing, we are a long way from complete success. Congress' continued support for our budget will sustain efforts in all of these areas.

Training

Several new programs are in place to train our force for 21st Century expeditionary and integrated aerospace operations. Deploying is now a way of life. The vast majority of our force never knew the garrison-style life of the Cold War Air Force. Accordingly,

airmen recruits confront the real world during the new Warrior Week encampment at Lackland AFB, Texas, where they learn to operate from a bare-base site. At Maxwell AFB, Alabama, the Aerospace Basic Course extends to new officers and selected civilians a working knowledge of how the Air Force fights. As air, space and information systems become more sophisticated, the Air Force views ongoing training and education as the key to successful command and employment of aerospace power. New training systems like Distributed Mission Training place airmen in a synthetic battlespace, connected electronically to other airmen joining the simulation from bases in other states.

Readiness

Today's global environment demands that we be ready for operations from Kosovo to the South Pole. Our people are ready to meet this demand, but years of ongoing operations and difficult funding choices pose a threat to near-term readiness. Keeping that threat at bay is one of our major concerns and a major focus of this year's budget.

The average Air Force aircraft is 20 years old and even with the introduction of new airframes, the average age will be 30 years by 2015. Supply systems are pushed to their limits as Air Force units deploy continually. Overall, average mission capable rates for aircraft have declined due to the high operations tempo and shortages in parts, equipment, and skilled manpower. With the help of the administration and Congress, we provided obligation authority of \$382M in FY99 for more spare parts inventory, and 100% funding for spares should reverse the shortage in 2000. We have put the brakes on declining engine readiness, but are still 25%

short in some war readiness spares. Readiness remains an area of vital concern.

Modernization

The Air Force's modernization strategy has three aims: to maximize combat performance, build the force of tomorrow and exploit new technologies that enhance warfighting capability. The Air Force is sized and shaped to be flexible enough to perform several basic missions with the same force: sustaining deterrence, winning two major theater wars in close succession, rapidly responding to small scale contingencies, deploying for sustained peace enforcement operations, and conducting humanitarian operations. That places a premium on modern, flexible forces and people who know how to do their jobs in a variety of operations.

Our continued innovation begins with basic technological research and program integration. Today's nascent programs are tomorrow's joint warfighting capabilities. Our successes in Kosovo have demonstrated that great military value can come from integration of air and space systems. For this reason, we are doubling our current budgetary expenditures for space science and technology between FY99-05. This will further enhance our integrated capabilities and lower the cost of space support. For this reason too, we have established the Aerospace Command, Control, Intelligence, Surveillance and Reconnaissance Center (ASC2ISRC) charged with integrating our multiple data, intelligence, and analysis systems into a comprehensive Aerospace Operations Center, and the Space Battle Lab charged with finding innovative ways to combine space and air systems.

As we look to our future integrated aerospace force, however, we cannot forget that aerospace power is complex and is built on a broad infrastructure that must also be modernized in parallel with combat systems. To meet Commander In Chief (CINC) requirements, for example, our budget includes capabilities ranging from satellites to smart cards to the Red Horse civil engineers to new forms of combat rations. Tested and proven over time, this phased, balanced modernization program will ensure the future of your Air Force as the most powerful aerospace force in the world.

As the Air Force modernizes its capabilities, we are mindful that they must be interoperable with the other services and contribute to a wide range of capabilities for Joint Operations. For example, the Air Force provides strategic airlift for all ground forces, long-range aerial refueling for naval and allied aircraft in combat operations, and assured access to space for a range of Department of Defense missions. The array of systems and capabilities we supply is broader and more diverse than that required of other military forces. This is not because of the importance of the Air Force as an institution. It is because of the growing importance of aerospace power in our Nation's joint military operations.

Finally, we must always analyze emerging requirements. We face a mixture of threats, and our budget seeks funding to improve our capabilities against emerging threats, such as chemical and biological weapons, terrorism, and efforts to deny or exploit our mastery of space. We also have a program of experimentation that will show us how to improve our capabilities now and to stay aware of potential technology synergies and operational concepts that could be important in this new century.

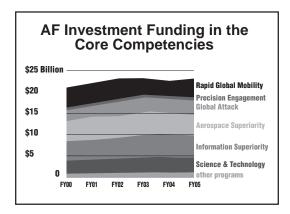
Investing in the Core Competencies of Aerospace Power

It takes the full set of competencies—aerospace superiority, global attack, precision engagement, information superiority, rapid global mobility, and agile combat support—to create aerospace power. These core competencies are operational capabilities that exploit the advantages of aerospace operations and enable many other types of joint operations. We cannot let down in any of these areas or we will put at risk our nation's ability to prevail in conflict. Therefore, we have taken a balanced approach to sustaining these core competencies in the FY01 budget request.

Aerospace Superiority is the control of air and space and the foundation of joint force, full spectrum dominance. From our nation's geographic position in the Western Hemisphere, we rely on aerospace superiority to protect our homeland and to enable us to deploy and to communicate to and from overseas theaters. Through aerospace superiority operations, we establish freedom from attack, freedom to maneuver and freedom to attack for all joint forces. Not since the Korean War have American soldiers been attacked by enemy aircraft. The Air Force is committed to ensuring that it never happens again so we are investing in modified systems, new systems and ISR platforms which support the core competencies, like upgrades to the F-15 and F-16 and the development of the F-22, as well as systems like the Space Based Infrared System (SBIRS), Airborne Laser (ABL), and Space Based Laser (SBL), to name a few.

Global Attack assets allow our nation to deter war and to strike any point on the earth's surface within hours of the decision to do so. Improvements to the B-2's low observability and integration of advanced weapons in the B-2, B-1 and B-52, as well as phased upgrades to the F-15, F-16, and F-117 aircraft and the development of the Joint Strike Fighter, will significantly enhance our global attack capabilities. Looking to the future, we are funding an experimental unmanned combat vehicle (UCAV) program.

Precision Engagement means precision strike of targets, in all weather, day or night. Beyond these combat applications, precision engagement also refers to our ability to get supplies and people to the right place at the right time to further policy goals. In our budget, new families of weapons are in the



spotlight, including the Joint Air-to-Surface Standoff Missile (JASSM), Joint Standoff Weapon (JSOW), JDAM and the Wind-Corrected Munitions Dispenser (WCMD). These programs have joint application and are the promise of a new transformation in power projection and decisive attack operations. In the area of precision support,

we continue to fund all aspects of our mobility systems.

Information Superiority is the collection, control and exploitation of the information domain. An uninterrupted flow of data and knowledge of the battlespace are critical to success in current and future military operations. The Air Force meets many service and joint requirements with an information superiority architecture that is at the cutting edge of technology. This truly unique asset is a collection of ground, airborne and space platforms, sensors and systems that represents a key contribution to joint operations. Our evolutionary modernization plan focuses on support to the expeditionary warfighter and includes upgrades to many of these systems. Key among them are the Joint Surveillance Targeting And Reconnaissance System (JSTARS), AWACS and U-2 aircraft, as well as the Predator and Global Hawk UAVs. We're also taking a step toward migrating some capabilities to space with the National Reconnaissance Office and the Defense Advanced Research Projects Agency in our joint investment on the Discoverer II spacebased radar.

Rapid Global Mobility is the ability to quickly position forces — from our own forces to those of our sister services or coalition partners — on or near any spot on the globe. Whether employing on-scene Aerospace Expeditionary Wings or deploying contingency forces in response to a crisis, mobility assets make the difference in speed and stamina. Procurement of the full complement of C-17s, development of the CV-22, aggressive C-130 and KC-135 modernization and C-5 upgrade programs, as well as development of the Evolved Expendable Launch Vehicle (EELV) will

ensure there are no gaps in our global mobility for the early 21st Century.

Agile Combat Support is the flexible and efficient sustainment of combat forces. As an expeditionary force, we are aiming for continued progress in reducing the deployment footprint, and speeding the delivery of the right supplies to the warfighter. To meet those needs, the Air Force is revamping its combat support systems. New logistics decision support tools and the Global Combat Support System are key enablers that will improve global logistics support.

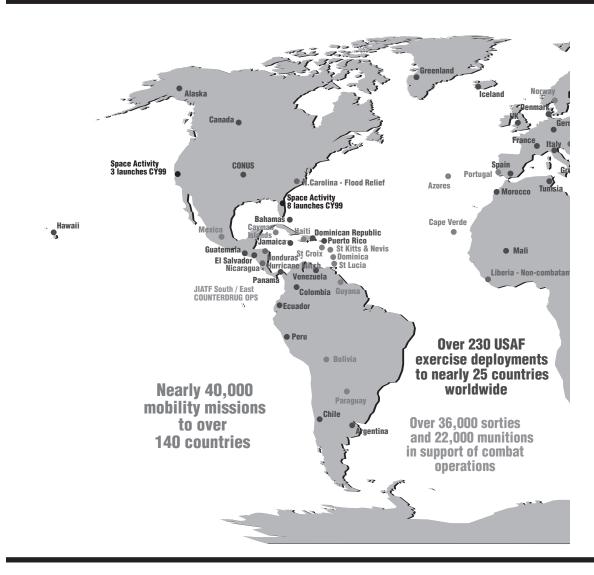
Summary

The security challenges of the 21st Century are difficult to predict. What we do know is that America will meet those challenges through joint operations built around decisive power projection with aerospace forces. The United States Air Force has a unique and broad set of responsibilities to defend the United States, protect its interests, project power, extend a helping hand, and enable joint forces to carry out a full spectrum of operations. The fundamentals of aerospace power — fast, flexible air, space and information systems, skillfully commanded by aerospace warriors — will be the building blocks of 21st Century security. With Congressional support, the Air Force will maintain strategic deterrence, meet regional security challenges through expeditionary operations, support global information exchange, and engage with allies to reinforce multinational security measures. The inherent flexibility of aerospace power and the capabilities achieved through the synergism of aircraft,

spacecraft and information systems will be the key components of national security against emerging threats. The United States is an aerospace nation, and your United States Air Force is now prepared and poised to meet the demands of ongoing global security commitments and must be in the future.

Security in the 21st Century depends in no small part on continuing to provide aerospace power that gives this nation its rapid global reach, decisive power and constant vigilance. Our world-class people make it work — they will always be our first priority. We are an expeditionary aerospace force configured for the long haul. We are continuing cycles of revolution as we transform into an information-rich, precision force and as we integrate aerospace systems ever closer together. We are an aerospace force that will grow ever more accustomed to operating in and from space. Our budget balances today's commitments with tomorrow's opportunities. We are prepared for the future and committed to serving the nation. We are a combat- proven, missionfocused, decisive fighting force. With your support, we will remain that way.

USAF Supported Operations Across the Spectrum of Conflict in FY99





Key Air Force Contacts



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House Liaison Office (202) 685-4531 Congressional Act Div (703) 695-0137 Weapon Systems Div (703) 697-6711 Programs & Legis Div (703) 697-7950 Congressional Inq Div (703) 697-3783

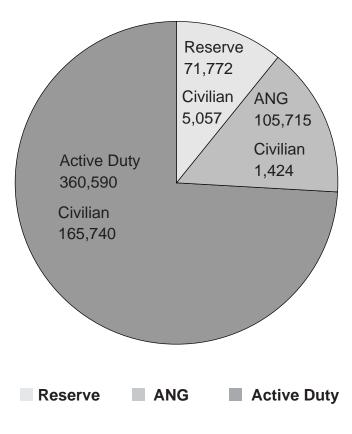


Gen Michael Ryan, Chief of Staff Donna DiToto, Confidential Assistant Room 4E924 (703) 697-9225



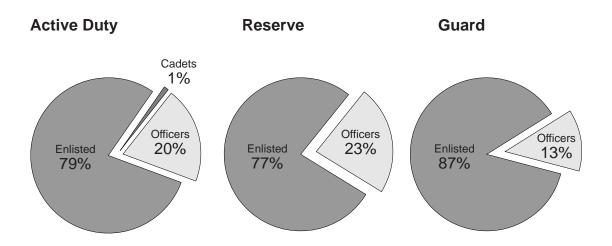
Major General Larry W. Northington Deputy Assistant Secretary, Budget Room 4D131 (703) 695-1875 Budget & Appr Liaison (703) 614-8110

US Air Force Demographics

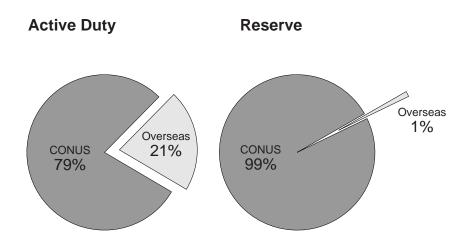


Total Force: 710,298

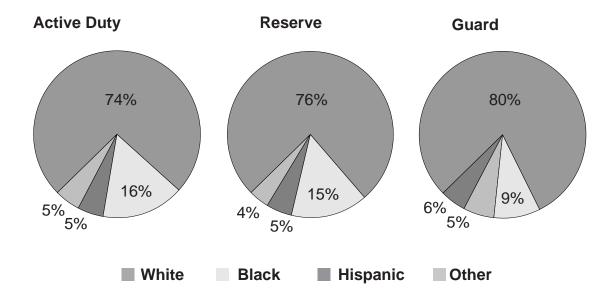
Military Officer/Enlisted Breakout



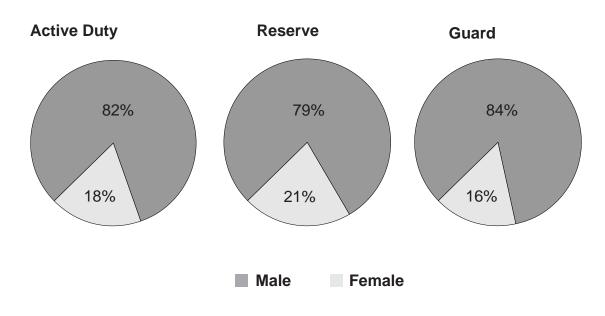
Military Assignment



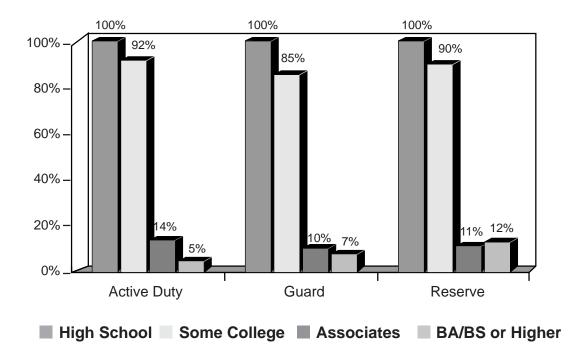
Military Race/Ethnicity



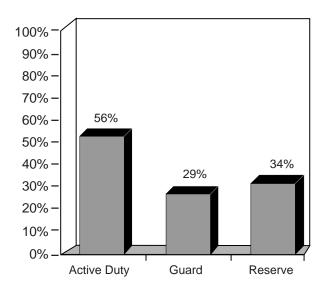
Military Gender



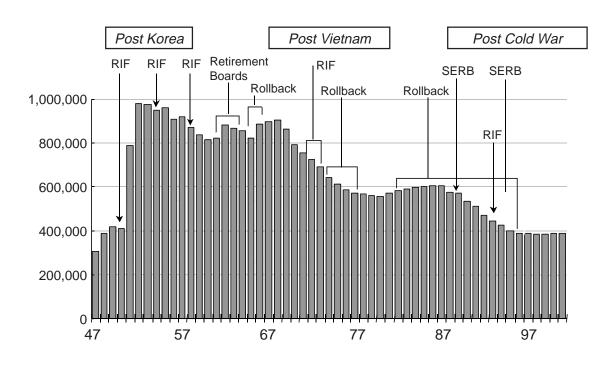
Education Level - Enlisted



Advanced Degree - Officers



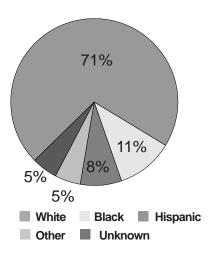
Force Levels - Where We've Been



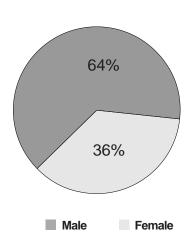
RIF - Reduction in Force SERB - Selective Early Retirement Board

Civilian Total Civilians = 165,740

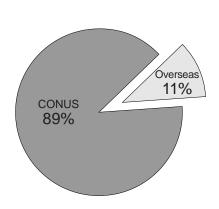
Race/Ethnic Characteristics



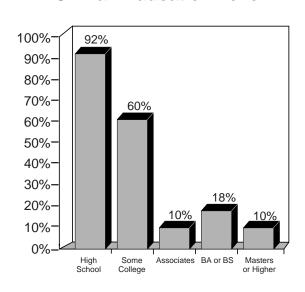
Gender



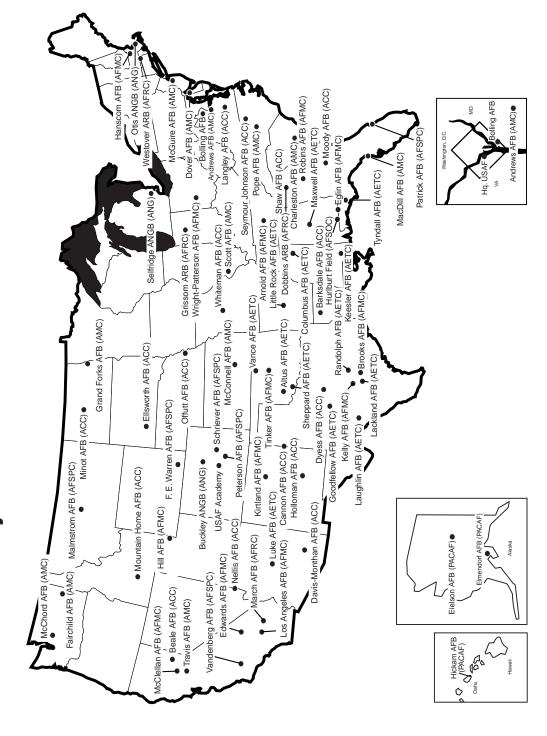
Civilian Assignment



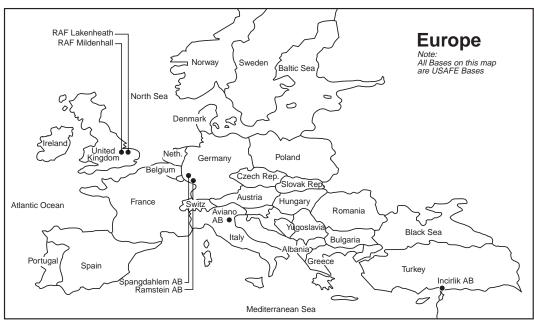
Civilian Education Level

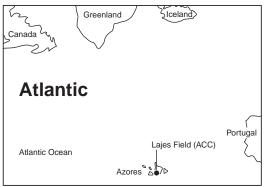


Major Air Force Installations In US

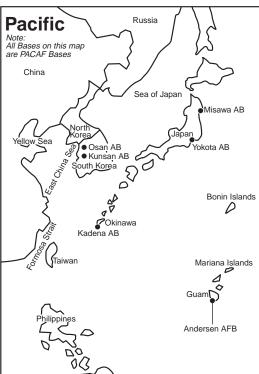


MAJCOM Air Force Installations Overseas









Selected Key AIR FORCE **PRIORITIES**

Our FY01 priorities reflect a corporate long range plan; a strategic flight plan into the 21st Century. Global Engagement built on a joint foundation; a critical component of National Military Strategy. Our priorities balance 4 key components; our People, Readiness, Modernization, and Infrastructure, predicated in part on efficiencies achieved by competition and privatization.





PEOPLE



Recruiting

Background

- The Air Force missed its accession goal in FY99 for the first time in 20 years
 - Retention challenges (resulting in low end strength) have driven up the annual accession goal
 - Numerous factors within today's society have led to a lower propensity to join the military
 - Lowest unemployment rate in 30 years; increase in number of seniors attending college (65%); low veteran population; perception of active/retired military of erosion of benefits
 - In an effort to reach accession goal we have jeopardized our delayed entry bank going into the past two FYs (target entering FY is 43%: entered FY99 at 37% and FY00 at 32%)
- Accessions are needed to replace normal retirements/separations and to help meet Air Force end strength needs

Discussion

- Air Force has initiated several incentives as part of the "plan of attack" to overcome recruiting shortfalls
 - Increasing advertising campaign and funding—we spent \$54M in FY99 to purchase paid TV advertising time for ads to run during FY99 and FY00
 - Increasing number of production recruiter authorizations from 1,209 to 1,446
 - Expanded the enlistment bonus program in both number of AFSCs eligible and max amount

- Expanded the Prior Service Program to include all Air Force specialties (FY98 only 4 AFSCs open)
- Approval has been given to expand the Junior ROTC Program
- By direction of the USECAF and the VCSAF an in-depth study of recruiting initiatives is underway and will result in numerous incentives to bolster our recruiting efforts
- Although we are on the fast track to increase our recruiting efforts we are currently behind the power curve due to our low entering delayed entry bank but remain optimistic that we can overcome our deficit

- Recruiting efforts are suffering due to changing factors in today's society and low retention
- Systematic efforts are underway to expand our target market and to offer an attractive option to today's youth population

Retention

Background

- The Air Force is directed to meet certain personnel end strength requirements on an annual basis in order to successfully carry out its mission as directed by Congress
- Numerous intangible and tangible factors are critical to the Air Force meeting its retention goals
 - Intangible Factors
 - Leadership, job satisfaction, self-worth
 - Tangible Factors
 - Economy, pay and benefits, retirement program, OPSTEMPO, assignment system, medical and dental care, housing

Discussion

- FY00 NDAA addressed pay and retirement with granting a 4.8% pay raise, pay table reform and repeal of Redux Retirement Plan; the Air Force will continue to push for fair compensation
- Selective Reenlistment Bonus program considers all AFSCs bi-annually to ensure problematic career fields are given appropriate recognition
- Aerospace Expeditionary Forces implemented to provide predictability and stability for members and their families; personnel should be able to plan for training, education and family activities
- Retention Summit 2000 will bring in senior officers and senior enlisted to review current retention initiatives for relevancy and suggest new initiatives; follow-on focus groups throughout USAFE and CONUS will validate Summit findings prior to development of a new retention plan

- Expect gradual increase in retention over the next five years
- Further expect better informed personnel on benefits and career expectations

- Retention is key to readiness and force sustainment
- The Air Force failed to meet retention goals in all three enlisted categories and retention has declined in a number of critical officer specialties
- The Air Force must continue to focus on reducing tempo, improving compensation and retirement, improving quality of life, improving care for families, and improving personnel programs

Quality of Life

Background

- Quality of Life occupies a prominent position in Air Force Strategic Planning
 - Ranked with modernization and readiness as Air Force top priorities
 - Return on investment seen in terms of recruiting and retaining quality people
 - Increasingly more important as high tempo continues to effect many people

Discussion

- Fourth consecutive year MAJCOM commanders validated the Air Force's QoL priorities; citing tempo, compensation and benefits, and quality health care as having the most impact on retention and readiness
 - Pursue fair and competitive compensation and benefits
 - FY00 NDAA contains historic improvements to military compensation including the retirement system, pay raises, special and incentive pays, and pay table reform
 - Must continue to seek pay raises to close the pay gap with the private sector
 - Reduce "out-of-pocket" PCS expenses for our members—currently members are reimbursed an average of 74 cents for each dollar they spend to relocate
 - Reduce "out-of-pocket" expenses for BAH (SECDEF initiative)
 - Balance the impact of high Tempo levels
 - Implementation of the Expeditionary Aerospace Force (EAF) concept provides a more capable, tailored force to CINCs while offering greater integration of Reserve Component forces. EAF efforts also provide a better structured, more predictable approach to scheduling which offers predictability and stability for our people

- Provide access to quality health care, including all retirees, with an emphasis on prevention programs, affordability, and readiness
 - TRICARE is the backbone to providing health care—DoD continues to work with contractors to fine tune
 - DoD is developing a strategy for Senior Care through analysis of various demonstrations across the country
- Provide access to safe, affordable, and adequate housing through sustained investment levels, competitive sourcing and privatization when feasible, and market-based housing allowances
- Protect retirement systems and enhance benefits to provide a reasonable level of economic security
- Increase and enhance support of community and family programs to provide the unique support network required for military members and their families
 - Enhance fitness and provide economic well being for our military members and their families by offering a variety of affordable activities
- Expand educational opportunities by preserving tuition assistance and Community College of the Air Force as well as expanding Montgomery GI Bill eligibility and distance learning

- Quality of Life ranks with modernization and readiness investments
- Investing in Quality of Life pays off in recruiting and retaining quality people
- We need your continued support for Quality of Life programs

Medical Care

Background

• The Air Force is committed to keeping medical programs and benefits strong for Active Duty, family members, and retirees. Affordable, quality medical care remains one of the most important elements of our military compensation program, thus vital to our recruiting and retention efforts and, ultimately, Air Force readiness

Discussion

- USD(P&R) established a new oversight structure for the Military Health System— Defense Medical Oversight Committee (DMOC). Purpose of DMOC is to
 - Provide optimum line participation in the establishment of benefit and budget priorities
 - Support reengineering to improve satisfaction and control costs, and
 - Define the medical benefit for active duty, family members, and retirees
 - DMOC conducted an extensive review of Defense Health Program (DHP) funding for FY00-05
- Air Force Medical Service (AFMS) continues its reengineering efforts to increase access to military treatment facilities
 - Performance metrics ensure accountability, and improve services and operational efficiency
 - Preventive services more strongly emphasized—decreases acute patient visits
 - Primary Care Manager by name implemented
 - Operation Command Champion campaign plan deployed to educate line commanders

- The medical benefit remains vital to recruitment and retention
- AFMS continues reengineering efforts to increase operational efficiency and patient access
- DMOC provides senior line leaders oversight of the health care benefit
- The Air Force realizes health care is a priority in Congress and will strive to improve health care for our entire Air Force family





READINESS



Factors Influencing Readiness

Background

- A highly experienced workforce must be equipped with modern and effective equipment if they are to perform at the readiness levels required by today's global environment
- Overall aircraft readiness is influenced by many factors: the effects of aging aircraft, declining mission capable (MC) rates, spares, depot issues and maintainer retention/skill level problems
- A key measure of readiness is the aircraft mission capable (MC) rate
- While overall MC rates have declined by 9.5 percent since peak rates of FY91, current MC rates are sufficient to meet minimum operational requirements, with some measure of risk

Discussion

- The age of AF aircraft is unprecedented; this year the average age of aircraft is 20 years. The cost of maintaining this older equipment is growing. The aging fleet presents maintenance challenges:
 - Corrosion, fatigue, and parts obsolescence continue to affect a number of airframes thereby requiring increased inspections at operational levels as well as at depot maintenance facilities
 - Longer depot maintenance flow times reduce operational aircraft availability
- Declining MC rates are driven by maintenance, supply and spare parts funding. Primary factors are:
 - Retention of maintenance personnel and skill level imbalances contributes to reduced rates

- Design deficiencies and hardware limitations impact engine performance and availability
- Spare parts problems
 - Increased cannibalizations result in double workload and increased parts failures
 - Diminishing manufacturing sources makes process of acquiring new parts difficult
 - Acquisition and manufacturing lead time for spares production often takes years
 - Efforts currently underway to correct shortfalls through continued AF attention and Congressional involvement
- Fiscal years 1998-2001 are a time of transition for AF depot maintenance as two of our five principal depots complete the process of BRAC-directed closure and their workloads are transferred to our remaining depots and commercial sources of repair

- Readiness has declined, but we can still meet minimum operational requirements with some measure of risk
- AF is actively engaged in addressing this decline through increased recruiting efforts, spare parts funding, and maintenance initiatives
- AF continues to balance the cost of developing new weapon systems with continued modernization efforts for our fielded weapon systems

Expeditionary Aerospace Force

Background

- Since the fall of the Berlin Wall we have 1/3 less people and a 66% reduction in permanent overseas bases yet we have had 4 times more deployments over the past 10 years over 14,000 Air Force people deployed at any given time.
- The Expeditionary Aerospace Force embodies how the Air Force will organize, train, equip and sustain its Total Force (Active, Air National Guard, and Air Force Reserve) to meet the security challenges of the 21st Century.
 - EAF is about structural and cultural changes to create more effective force management tools to address CINC requirements yet ensure the sustainability of the force under the National Security Strategy.
 - The EAF consists of 10 Aerospace Expeditionary Forces (AEFs) of equivalent capabilities available to meet national security requirements.
 - A pair of AEFs will be scheduled at any one time for deployment availability to cover a 90 day period every 15 months. Elements of these two AEFs will meet Steady State taskings (such as Operation NORTHERN and SOUTHERN WATCH) and retain a crisis response capability to respond to pop-up contingencies.
 - This structure provides personnel greater scheduling stability and predictability while ensuring sufficient force structure remains trained and ready to meet wartime taskings.

Discussion

- Status
 - The Air Force has completed concept development and started implementing the EAF concept on 1 October 1999 with the deployment of elements from AEFs 1 and 2.
 - This concept maximizes Total Force Integration with the Air National Guard and Air Force Reserve forces making a significant contribution to all 10 AEFs.
- Next Step
 - To ensure appropriate long term investment strategies are in place to address shortages and resource disconnects in force structure to mission requirements.

Main Points

• The EAF is structural and cultural departure from the organization and operational concepts developed in response to Cold War requirements. EAF was developed to address the realities of the 21st Century National Security requirements.

Aerospace Integration

Background

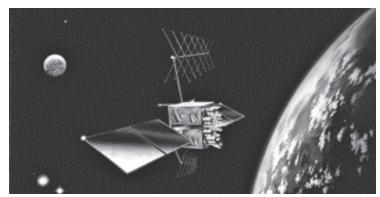
- The combination of air-based and spacebased operations into aerospace power operations is resulting in revolutionary new capabilities and vastly improved existing capabilities. The advancement of air- and space-based technologies is blurring the distinction between the two environments. The Air Force is operating throughout the aerospace continuum in a seamless manner.
 - Aerospace Integration is the set of actions being taken by the Air Force to increase the synergies between air and space operations. These actions are being developed in the Aerospace Integration Plan, a set of high-leverage actions to improve the warfighting capabilities of the Air Force for the Joint Team and the nation.
- Our growing military and economic investments in space-based capabilities may result in their targeting by our adversaries. The DoD has the responsibility to exploit and protect the nation's space-based assets. The Air Force is evolving towards a full spectrum aerospace force in the anticipation of military operations in, through, and from space.

Discussion

- In the areas of employment and doctrine, the Air Force is expanding its training of Joint Force Commanders and Aerospace Component Commanders to include more knowledge in space-based capabilities. Our air and space assets will soon be tasked by the same operational plan to complement the strengths of each.
- The people of the Air Force are its most valuable asset, and thus their understanding and support for aerospace integration is important. The "seamless operations"

- mindset is being nurtured within the Service through education, training, and doctrine. Our goal is for all personnel to be comfortable with every aspect of aerospace power.
- The Air Force's organization will change as seamless operations continue to mature. A flow of personnel throughout the Service will eliminate stovepiped careers and limited expertise.
- Our equipment is an integrated mix of air, space, aerospace, and information systems. The allocation of our resources depends on the capabilities of a given platform and its role within the system of systems, not the medium in which it operates.
- The Air Force role within the Joint Team depends on the capabilities it brings to the fight. We will continue to develop new capabilities and improve our existing systems to better support joint warfighting.
- The Air Force also engages with the broader aerospace community, leveraging its resources with the best efforts of the civil aerospace, commercial, and academic communities. The Air Force will continue to take a major role in the development of national aerospace power and activities.

- The integration of air and space within the Air Force improves effectiveness and efficiency while furthering the development of new capabilities.
- The Air Force is committing itself to continue aerospace integration to fulfill its responsibility to the Joint Team and the nation.





MODERNIZATION



Air Force Modernization Roadmap

Background

- The Air Force has a time-phased, balanced approach to modernization
 - Time-phased provides the required capabilities in phase with the aging out of legacy systems previously designed to do similar tasks
 - Balanced investments are made across all Air Force core competencies
- The modernization strategy is shaped and focused by the Air Force vision Global Engagement
 - Focuses efforts on developing and enhancing capabilities to support the Expeditionary Aerospace Force - lethal, light, and lean
- The Air Force is both upgrading existing equipment and procuring new systems

Discussion

- In all cases modernization supports the Air Force core competencies and enhances the aerospace power the Expeditionary Aerospace Force delivers to Joint Force Commanders
 - Information superiority the ability to collect, control, exploit, and defend information; programs include MILSATCOM, GPS, UAVs, Joint STARS, and Discoverer II
 - Rapid Global Mobility respond with the right force, at the right time, in the right place; programs include C-17, EELV, GANS/GATM, and modernization of C-5, C-130, and KC-135
 - Aerospace superiority the ability to control the aerospace dimension;

- programs include the F-22, Airborne Laser, SBIRS, and the AMRAAM and AIM-9X air-to-air missiles
- Global Attack the ability to project power rapidly, precisely, and globally; programs include the B-2, B-1, and JSF
- Precision Engagement the ability to apply selective force against specific targets and achieve desired results; programs include JASSM, JSOW, JDAM, CALCM, and WCMD
- Agile Combat Support provides improved responsiveness, mobility, and sustainability; programs include the GCSS, R-TOC, and integrated information systems
- Aggressive acquisition reform initiatives will help to reduce the cost of doing business and make continuous process improvements our cultural norm

- The Air Force Modernization Roadmap is a time-phased, balanced plan to provide the capabilities required for Global Engagement and the Expeditionary Air Force
- The Air Force is both upgrading existing equipment that is still viable and procuring revolutionary new weapon systems

F-22

Background

- The F-22 Program is developing the nextgeneration air superiority fighter for the USAF
 - F-22 is designed to penetrate enemy airspace and achieve first look, first kill capability against multiple enemy targets
 - F-22 is characterized by low observable, highly maneuverable airframe, advanced integrated avionics, and aerodynamic performance allowing supersonic cruise without using fuel consuming afterburner
 - F-22 will also have impressive air-toground attack capability for deep interdiction of strategic and operational level targets in early days of air campaign

Discussion

- The threat to US air superiority forces in the next century is increasing in lethality
 - Advanced SAMs pose a significant threat by denying enemy airspace to conventional fighters, and are proliferating throughout the world
 - F-22 shrinks the advanced SAMs engagement zone, allowing operation in the SAM environment via stealth and supercruise
 - Combination of sophisticated threat fighters and launch and leave missiles will surpass the capability of the F-15C
 - F-22 stealth, supercruise, and integrated avionics will dominate current and future threats
 - F-22 versatility means more capability for the Joint Force Commander

- F-22 has higher sortie rate, lower deployment requirements, and less manpower than F-15
- F-22 Initial Operational Capability (IOC) scheduled for Dec 2005

- F-22 is Air Force's #1 development program— blend of stealth, supercruise, integrated avionics, maneuverability, and payload enable F-22 to get to the fight fast and operate with impunity over our adversary's territory.
- F-22 will have impressive air-to-ground capability which when matched up with its stealth and supercruise will give it a unique capability to carry the fight deep into enemy's strategic target areas.

Joint Strike Fighter

Background

- By 2010 U.S. strike-fighter aircraft will be operating in a threat environment that is populated by technologically sophisticated and highly lethal weapons systems integrated by advanced command and control architectures
- The JSF program will develop and deploy an affordable yet technologically advanced, highly common family of over 3,000 nextgeneration multi-role strike fighter aircraft which can meet the requirements of the U.S. Air Force, Navy, Marine Corps, the United Kingdom, and allies
- The JSF program will demonstrate two competing concepts for a tri-Service family of aircraft to meet stated Service and United Kingdom (UK) needs as follows:
 - USAF: Multi-role aircraft (primary airto-ground) to replace the F-16 and A-10 and complement the F-22
 - USN: Multi-role stealthy strike fighter to complement the F/A-18E/F
 - USMC: Multi-role Short Take Off/ Vertical Land (STOVL) strike fighter to replace the AV-8B and F/A-18
 - UK: STOVL (supersonic) aircraft to replace the Harrier FA2, GR7 and T10

Discussion

- The JSF program entered Program Definition and Risk Reduction (PDRR) phase on 15 Nov 96 (Milestone I documentation completed). PDRR consists of three parallel efforts leading to Milestone II EMD start in FY01
 - Concept Demonstration Program (CDP): Two CDP contracts competitively awarded on 16 Nov 96 to Boeing and Lockheed

- Martin for ground and flight demonstrations. Total cost is \$2.2B for the 51 month effort, including the propulsion contract to Pratt & Whitney
- Technology Maturation: Evolve key technologies to low-risk for EMD entry
- Requirements Definition: Requirements are being shaped/refined using Cost As an Independent Variable (CAIV) leading to a Joint Operational Requirements Document in FY00. Cost/performance trades are key to the process
- Overall emphasis on the JSF Program is affordability while increasing lethality, survivability and supportability over current fighters to perform its mission against 21st century threats. JSF will incorporate stealth in order to enhance its mission effectiveness and survivability. This aircraft will integrate information from theater, national, and space systems as part of a "System of Systems" to increase effectiveness and utility for the Joint Forces Commander

Main Points

• JSF is a crucial element of the Air Force's Tactical Air Modernization plan while at the same time providing the opportunity for unprecedented levels of interoperability with our sister services.

Evolved Expendable Launch Vehicle

Background

- Mission: Partner with industry to develop a national launch capability that satisfies government requirements, reduces the cost of space launch by at least 25%, and greatly improves operability
 - Replaces current Delta, Atlas, and Titan space launch vehicles (FY02-FY20)
- Provides affordable assured access to space for warfighter/national security needs
 - Equates to \$5-10B savings through 2020 (\$6.2B projected savings)
 - Off-pad payload processing, standard payload interfaces and pads reduce launch operations time
 - Enables U.S. commercial launch service providers to become more competitive, not only from a cost position, but also from vehicle availability and flexibility standpoints
- Enhances U.S. industrial base and poises two competitive launch vehicle families to capture increased domestic and international commercial

Discussion

- Low Cost Concept Validation Phase Completed Dec 96
- Pre-Engineering and Manufacturing
 Development (Pre-EMD) Phase Completed
 Jul 98
- USD(A&T) approved acquisition strategy revision Nov 97
 - Maintain ongoing competition throughout life of program
 - Contractors share development costs with government for this commercially marketable system
 - Govt purchases launch services vs separate launch hardware and operations
- Development Phase: FY99-FY02

- •Unique partnership between Government and contractors
 - Government investment fixed at \$500M and must be paid NLT FY02; each contractor funding remainder of development effort (approximately \$1B each)
- Two Development Other Transaction Agreements (OTAs) awarded 16 Oct 98
 - \$500M each to The Boeing Company and Lockheed Martin Astronautics
 - Completes launch system development, construction/modification of launch site infrastructure, establishes manufacturing capability
- Initial Launch Services (ILS): FY02-FY06
 - Govt purchases launch services vs separate launch hardware and operations
 - Two ILS firm fixed price contracts awarded on 16 Oct 98 for 28 missions
 - The Boeing Company 19 missions for \$1.34B
 - Lockheed Martin Astronautics 9 missions for \$649M
 - <u>Launch services are firm fixed priced</u> and are fully funded two years prior to launch
 - Critical Design Reviews (CDRs) completed in 1999

- EELV provides assured access to space for the warfighter and national security needs at a 25% cost reduction over current systems
 - Currently projecting 31% overall savings, equalling \$6.2B between FY02 and FY20
- EELV replaces the current Titan IV, Titan II, Delta and Atlas launch systems

Spaced Based Infrared System (SBIRS)

Background

- The Spaced Based Infrared System (SBIRS) fulfills the nation's security needs in Missile Warning, Missile Defense, Technical Intelligence & Battle Space Characterization
- The SBIRS system-of-systems consists of a SBIRS High component with geosynchronous (GEO) satellites and sensors placed in highly elliptical orbits (HEO), a SBIRS Low component with low earth orbiting (LEO) satellites, and the Defense Support Program (DSP)
- Air Force has an incremental approach to fielding the SBIRS System-of-systems.

Discussion

- Increment 1, consolidation of DSP ground assets into a single CONUS ground station
 - Experiencing delays due to software development challenges, overly aggressive schedule and late Government Furnished Equipment
 - Revised Increment 1 schedule being developed
- Increment 2, SBIRS High (GEO/HEO) and associated upgrade of the ground station
 - Restructured (First launch in FY04)
 SBIRS High contract definitized in Dec 99
 - FY00 Appropriations Act limits expenditures to \$100,000,000 until:
 - SECDEF certifies compliance with full funding policy and
 - DOT&E assesses whether acq. strategy testing supports a production decision
- Increment 3, SBIRS Low (LEO) and associated upgrade of the ground station

- Two competitive Program Definition and Risk Reduction contracts awarded Aug 99
- Each contract is firm fixed price, worth \$275M cover 38 months of effort
- Engineering and Manufacturing Development contract to be awarded to a single contractor in FY03
- Moderate to high cost and schedule risk to meeting first launch of FY06
- FY00 Auth Conf designated ballistic missile defense as primary mission for SBIRS Low, and requires BMDO/D approval to change technical requirements, schedule or budget

- The Air Force's Space Based Infrared System (SBIRS) will incrementally provide the advanced capabilities required to support Aerospace Superiority
- The SBIRS incremental approach will allow utilization of existing Defense Support Program assets and will allow for the most efficient delivery of improved capability to the warfighter

Airborne Laser (ABL)

Background

- Air Combat Command's directed energy (DE) weapon with primary defensive counter air (DCA) task of killing theater ballistic missiles (TBMs) in boost (i.e. earliest) phase of flight
- The Airborne Laser (ABL) is a modified 747 armed with multi-megawatt class Chemical Oxygen Iodine Laser (COIL)
- Vital part of theater missile defense
 (TMD) family of systems architecture —
 DoD's only boost phase intercept system —
 kills TBMs at long standoff ranges
 (hundreds of kilometers)
 - ABL's sensors enhance attack operations and other TMD systems by providing accurate launch/impact point data and missile early warning
- True weapon of deterrence potential for missile debris to fall back on enemy's own territory

Discussion

- ABL will help Air Force learn how to operate and employ DE weapons
 - Program will mature some enabling technologies for Space Based Laser (SBL)
 - ABL and SBL combining TBM lethality efforts for synergism between DE programs
- Program anchored by over 20 years of laser technology development ABL's flight-weighted laser module demonstrated over 107% of its design power requirement in Jun '99 over 400 seconds of lase time to date
- ABL Initial Operational Capability (IOC) will be 3 aircraft
- ABL Full Operational Capability (FOC) will be 7 aircraft

- ABL is a <u>key element</u> of multi-layered TMD architecture
- ABL is a <u>deterrent</u> against the use of weapons of mass destruction
- ABL will <u>revolutionize</u> the way wars are fought in the 21st century

GPS Modernization

Background

- Program to upgrade the Global Positioning System (GPS) in response to jamming threat and national policy to encourage civil use of GPS without degrading military utility
 - Includes upgrades to the satellite and ground control segment to add civil signals and new military signals at higher power
 - Includes upgrades to military user equipment to minimize the impact of adversarial jamming
 - Includes development and employment of new or modified systems to deny GPS use by regional adversaries
- GPS modernization is based on numerous studies, Presidential Directive, and statute
 - All recommend GPS enhancements in support of economic infrastructure and national security
- Joint Requirements Oversight Council (JROC) validated GPS requirements in Jun 99 called for more robust military code and increased signal power

Discussion

- As demonstrated in Operation Allied Force over Kosovo, U.S. and Allied militaries are becoming ever-more dependent on GPS for navigation and weapons delivery
- GPS modernization will ensure availability of this critical force enhancement as the jamming threat evolves and expands
- Over \$650M added to the GPS program for new satellite capabilities, operational

control segment (OCS) upgrades, and navigation warfare (Navwar) user equipment development

- Satellite modernization will begin with the last 12 Block IIR satellites, adding a second civil signal (C/A on L2) and a new military signal (M-code); first launch in late FY02
- First six Block IIF satellites will get similar modifications with the addition of a third civil signal (L5); first launch in FY05
- Starting with satellite seven, the remaining IIF satellites will also include a high-power spot beam (+20dB) for the military code; first launch in FY08

- U.S. and Allied militaries depend heavily on GPS for navigation and weapons delivery
- Civil use of GPS is rapidly expanding
- The Air Force plan for GPS modernization protects U.S. and Allied military access, prevents adversarial use, and preserves civil use

Information Assurance

Background

- Information Assurance (IA) is a key component to ensure Information Superiority for warfighters
 - Assured, available communications enabler for Air Expeditionary Force warfighting concepts
 - Application of air and space power in support of Joint Force objectives is dependent on trusted information being available where and when it is needed IA makes it happen

Discussion

- Mission Readiness, Critical Infrastructure Protection, and Training
 - Air Force "operationalizing" IA
 management and security infrastructures
 to include warfighting readiness reporting
 ensures commander visibility into this
 critical function
 - Service Critical Infrastructure Protection (CIP) policy published — supports
 Presidential Decision Directive to protect key infrastructure components vital to
 National interests
 - Employing latest technologies to train our personnel on IA concepts — trained over 200,000 network users in one month, improving awareness and knowledge of IA principles
- Defense in Depth
 - Three-tiered network management and security architecture is continuously improving comprehensive, integrated team ensures IA support to warfighters worldwide
 - Fielding technology to improve IA posture new intrusion detection

- systems, firewalls, network management tools, and public key encryption capabilities for 21st Century operations
- Strength of IA capabilities tested during Kosovo operations, but adversaries around the world continue to improve their ability to potentially affect our Information Operations
- Challenges
 - Warfighter demands for comprehensive and reliable voice, data, and video services continues to grow — assuring delivery where and when it's needed is critical to successful operations
 - Maintain trained experts to operate, manage, and defend networks
 - Evolving threat and new technologies require ability to continuously enhance our IA posture through improved protection devices, information delivery methods, and dedicated personnel

- Air Force is working to treat networks like the weapons system they've become — Information Assurance (IA) provides the information tools warfighters need to be successful
- Air Force continuing to improve its IA posture through fielding of better tools, providing training to its personnel, and ensuring commander visibility into IA warfighting readiness
- Key challenges are to maintain trained personnel, equipped with state-of-the-art technology, able to meet a growing warfighter need and counter the evolving threat

Information Operations

Background

- The Air Force view of Information Operation (IO) includes actions taken to gain, exploit, defend, or attack information and information systems to achieve information superiority. There are two distinct, but extremely interrelated, pillars that must be closely integrated with each other and with all aerospace power functions:
 - Information-in-War (IIW): Involves the Air Force's extensive capabilities to provide global awareness from an array of military operations based on integrated intelligence, surveillance and reconnaissance (ISR) assets; information collection/dissemination activities; and global navigation and positioning, weather, and communications capabilities.
 - Information Warfare (IW): IO conducted to defend one's own information and information systems, or to attack and affect an adversary's information and information systems. Components within IW include Electronic Warfare, Physical Attack, etc.- the offensive counterinformation; and Information Assurance, OPSEC, Deception, etc. the defensive counterinformation.

Discussion

- IO exists to support commanders in determining the situation, assessing threats and risks, and making timely and correct decisions.
- The conduct of IO in air, space, and cyberspace constitutes the means by which the Air Force does its part to provide

Information Superiority to the nation, joint force commander, and Service component and coalition forces.

• Air Force performs theater-level strategic/operational/tactical IO, employing deployable and reachback capabilities, in concert with Aerospace Expeditionary Task force themes.

- Defensive counterinformation (DCI) is the Air Force's overall top priority within IW. Air Force IW efforts will focus on implementing IW capabilities through warfighting component commands in support of joint warfighting commands.
- Integrating rear-area (including CONUS) intelligence exploitation and reporting capabilities to provide forward-based forces with essential information for planning/executing operations.
- The Air Force is learning to battle manage a diverse ISR force with the same precision demonstrated for larger-scale strike operations over the years. The fielding of Unmanned Aerial Vehicle (UAV) ISR forces and coupling Allied and Coalition ISR efforts with ours present particularly daunting challenges.
- The end-to-end process for producing the intelligence needed for weapon system development and subsequent fielding and employment is under thorough review to ensure adequate intelligence is available for the 21st century weapons inventory.

Computer Network Defense

Background

- Air Force leadership is committed to Computer Network Defense (CND) as a top priority
 - Assured, available communications enabler for Air Expeditionary Force warfighting concepts
 - Infrastructure improvements support CND activities challenges still exist

Discussion

- Organizational commitments
 - USSPACECOM assumed responsibility for CND mission in Oct 99 — Air Force Computer Emergency Response Team (AFCERT) remains Service focal point for command and control of CND activities
 - AFCERT develops and coordinates CND actions with wide variety of AF organizations AF Network Operations Center, MAJCOM Network Operation and Security Centers, base Network Control Centers and Information Warfare (IW) flights
 - Comprehensive, integrated team effort to defend networks and assure warfighter information
- Infrastructure improvements
 - Base Infrastructure Protection (BIP) —
 AF in Phase II of deploying BIP
 technologies including additional firewalls
 and a significantly improved training
 program 95 of 108 AF bases are
 scheduled for completion in CY 2000
 - Fielding improved Intrusion Detection Systems — increasing detection capabilities and enhancing a critical law enforcement/counterintelligence tool

- USAF Public Key Infrastructure contract awarded — supports user and server certificate distribution for information encryption and authentication; will support transition to user smart cards (DoD Common Access Card)
- Challenges
 - Growing prevalence of distributed attacks that are difficult to detect, attribute and defeat
 - Maintaining a corps of trained experts to operate and defend networks
 - Threats and technologies continuously evolving — vigilance is catalyst to successful CND

- Comprehensive, integrated Air Force team is dedicated to defending networks and assuring warfighter information
- Air Force continues to upgrade existing network infrastructures to meet growing threats
- Key challenge is maintaining warfighting edge through state-of-the-art technological capabilities, comprehensive operational processes and dedicated personnel trained for conducting CND and network operations in the 21st Century

Command and Control Roadmap/Interoperability

Background

- Air Force developed capabilities-based campaign plan and new command and control partnership concept as primary elements of its C2 modernization roadmap
 - Aerospace C2 Intelligence Surveillance and Reconnaissance Center (AC2ISRC) Campaign Plan 2000 provides strategic direction to prioritize resources and actions for modernizing C2ISR capabilities
 - USAF C2 Concept of Operations (CONOPS) establishes the Dynamic Aerospace Command (DAC) concept which emphasizes C2 interoperability and supports a proactive global partnership of networked command centers

Discussion

- Goal of Campaign Plan 2000 is to ensure all C2ISR resources and actions are aligned to modernize and integrate the most pressing C2ISR needs; five focus areas for FY02 POM submission are:
 - Global Information Grid; an infrastructure to obtain seamless, protected, reliable, worldwide connectivity supporting all C2ISR mission needs
 - *ISR Sensors and Platforms*; deploy enhancements for selected C2ISR platforms that sustain and modernize the fleet
 - ISR Tasking Processing Exploitation and Dissemination; effective and dynamic tasking ISR assets to exploit, fuse, and provide information to the warfighter
 - *Joint Aerospace Applications*; implementation of central procurement for enterprise software licenses
 - *Time Critical Targeting*; improve capability to rapidly target enemy forces

- Interoperability key element in USAF Command and Control
 - DAC concept re-engineers USAF command centers to collaborate globally in support of National Command Authorities, all CINC's, Services, and Allies
 - Emphasizes situational awareness through a common operational picture
 - Commanders' decisions dynamically executed through a global network to achieve national objectives efficiently and with maximum effect
 - Air Force participates in C2 interoperability exercises/experimentation efforts to include Joint Expeditionary Force Experiment (JEFX) and Joint Warrior Interoperability Demonstration (JWID)
 - JEFX provides means to test C2 systems for enhanced interoperability
 - JWID provides a vehicle for rapid C4I technology insertion to improve interoperability between the Services and Allies

- The Air Force possesses capabilities-based campaign plan and conceptual architecture for command and control (C2) modernization
 - The Campaign Plan facilitates development and submission of the FY02 POM Recommendations for Air Force's most pressing C2ISR focus areas
 - DAC concept supports a proactive global partnership of command centers
- Experimentation efforts to improve C4I interoperability bolster AF effectiveness under Expeditionary Air Force concept

Air Force Science and Technology

Background

- The S&T Program develops and demonstrates affordable innovative technologies to provide superior warfighting capabilities for the 21st century. These technologies:
 - Meet near- and far-term military needs in acquisition and sustainment
 - Support a changing defense posture and affordable technical modernization
 - Prevent technology surprise from potential adversaries
- The S&T Program consists of:
 - 6.1, Basic Research—primarily university and in-house laboratory-based—identifies, develops, and transitions militarily-relevant knowledge, principles, and products
 - 6.2, Applied Research—in-house laboratory-, university-, and industry-based—determines technical feasibility in a laboratory environment of advanced, militarily important technologies
 - 6.3, Advanced Technology Development —mainly industry-based—develops and demonstrates advanced technologies in an industrial and/or near-operational military environment
- The S&T Program:
 - Is managed corporately—covers core AF mission areas—linked to AF Strategic Plan
 - Is customer-focused on quality and relevance to meet warfighter needs
 - Seeks operational/technical expert input to maintain balance
 - Promotes rapid transition through contracts/ grants with industry and universities
 - Coordinates with Services/Defense Agencies through Defense Reliance

Discussion

- Sense of Congress on DOD S&T Program is for SecDef to increase the FY01-09 S&T budget by at least 2% over inflation above the prior fiscal year request
 - AF S&T meets or exceeds 2% real growth for FY01-02, using FY00 President's Budget (PB) as a baseline
 - AF has worked hard to increase its S&T budget; the FY01-05 S&T Program was increased \$211M between the FY00 and FY01 PBs
- FY01 budget supports AF Vision of an Expeditionary Aerospace Force—a strong focus is on aerospace (integrating air with space capabilities)
 - AF plans to double current Space S&T investment to ~30% of S&T budget by FY05
 - Increased emphasis: satellite survivability; space-based radar; hyperspectral imaging; space optics and laser technology (includes space-based mirrors); and space vehicles (operations and maneuver vehicles)

- AF S&T discovers, develops, and integrates affordable, innovative warfighting technologies for our air and space forces
- U.S. industry and academia execute the majority of S&T funds, while AF performs selected in-house research
- AF evolving air and space competencies into a full spectrum aerospace force—will double investment in Space by FY05
- AF S&T meets or exceeds 2% real growth for FY01 using FY00 PB as a baseline

Air Force Battlelabs

Background

- The Battlelabs' missions are to rapidly identify and prove the worth of innovative operations and logistics concepts that improve the ability of the AF to execute its core competencies
- The Air Force's six Battlelabs became operational on 1 July 1997
 - The Battlelabs are: Air Expeditionary Force, Command and Control, Force Protection, Information Warfare, Unmanned Aerial Vehicle, and Space

Discussion

- Battlelabs are small, focused, agile organizations limited to 25 people
 - Battlelabs use field ingenuity and partnering with Air Force, DoD, industry, and academia to leverage existing infrastructure and processes to find revolutionary and innovative ways to apply air and space power
 - New concepts validated by the Battlelabs and adopted by the Air Force may prompt revisions to Air Force organization, doctrine, training, requirements, or acquisitions
- Two categories of initiatives: Kenney and Mitchell class Battlelab Initiatives (KBIs and MBIs, respectively)
 - KBIs are innovative, straight forward, lower cost, and are under an operating command's direction
 - MBIs are revolutionary, complex, or resource intensive, and must be outlined in a Campaign Concept and presented to the Air Force Board of Directors by the

- sponsoring operating command for decisions on course of action, resourcing, and cross-command tasking
- The Battlelab process minimizes bureaucracy and maximizes innovation potential
 - Potential ideas are identified from across the Active, Reserve, and Guard forces, as well as Industry—promising concepts are culled from these ideas—a select few result in funded initiatives lasting 18 months
 - Battlelab initiative findings and recommendations are presented to the Air Force corporate structure which then balance the military worth of validated ideas with resources available to make transition decisions

- The Air Force has six small, focused Battlelabs whose mission is to rapidly identify innovative and revolutionary operations and logistics concepts, measure their worth, and report the findings to the corporate AF for transition decisions
- New concepts validated by Battlelab initiatives and adopted by the Air Force may prompt revisions to Air Force organization, doctrine, training, requirements, or acquisitions

Joint Expenditionary Force Experiment

Background

- The Air Force uses experimentation, particularly the large-scale Joint Expeditionary Force Experiment (JEFX), to expedite building the Expeditionary Aerospace Force for the 21st Century
 - Truly joint—focuses at the joint forces air component commander level
 - Provides means to validate new operational concepts
 - Provides knowledge for informed investment/divestment decisions in the POM
 - Identifies mature technologies that can be transitioned rapidly to the warfighter
- The Air Force's overall experimentation strategy is described in the Draft AF Experimentation Campaign Plan (AFE CPLAN), a rolling 6-year plan with annual reviews
 - Integrated Melds experimentation needs from AF strategic plans and modernization mission area planning efforts with joint concepts, Defense Planning Guidance and CINC Integrated Priority Lists; links to USJFCOM's Joint Experimentation Campaign Plan

Discussion

- Expeditionary Force Experiment (EFX) 98 was the first large-scale Air Force experiment
 - Demonstrated the feasibility of Command and Control (C2) for expeditionary air warfare
 - Results developed initial distributed architecture for integrated command and control; some demonstrated technologies were used to support real-world operations

- JEFX 99 expanded on EFX 98 results enhanced integration of space capabilities into integrated command and control, distributed architecture and incorporated joint/combined participation
 - Assessed 57 initiatives, with 46 percent of these recommended for implementation/fielding
 - Result validated Distributed Operations as the Air Force way of doing business in the future
- JEFX 2000 will occur in Sep 00 and focuses on Agile Combat Support
 - Builds on prior successes and lessons learned - exploration/maturation will continue on integrated command and control in a distributed, collaborative environment
- JEFX 2000 is the Air Force component of USJFCOM's Millennium Challenge 00, a multi-service experiment allowing opportunity to explore interoperability and joint concepts

- The Air Force uses experimentation, particularly the large-scale Joint Expeditionary Force Experiment, to expedite building the Expeditionary Aerospace Force for the 21st Century.
- EFX 98 developed the initial distributed architecture for integrated command and control, JEFX 99 validated Distributed Operations for the Air Force, and JEFX 2000 will continue this building-block process.
- Air Force Experimentation focuses on Air Force core competencies in support of the joint warfighting forces.

Space Based Laser

Background

- The Space Based Laser (SBL) is envisioned to provide the nation with a highly effective, continuous, global, defense system against ballistic missiles in their boost phase
 - The SBL program originated at DARPA in the late '70s and was transferred to the Strategic Defense Initiative Office, then the Ballistic Missile Defense Office, then finally to the Air Force by a Memorandum of Agreement, in May 1996
 - Over \$1B has been spent maturing the technologies for the SBL system, laser, optics, beam control systems, etc
- The Air Force is now conducting the next step in the SBL program, the proof-of-concept research demonstration experiment, called the SBL Integrated Flight Experiment (IFX)

Discussion

- The IFX Project is the logical and necessary next step in developing the operational SBL system
 - Advance and assess the feasibility of the SBL concept and its technologies, to include assessing non-BMD mission utility; within acceptable risk parameters and within planned funding profiles
 - The IFX project will culminate in the demonstration of directed energy boost phase intercept against a boosting representative target
- In Feb 99, the Air Force awarded SBL IFX contract to a Joint Venture consisting of three contractors:

- Lockheed Martin Missiles and Space Division, Sunnyvale, CA
- TRW Space and Laser Programs Division, Redondo Beach, CA.
- The Boeing Company, Canoga Park, CA
- Issue The 1972 Anti-Ballistic Missile Defense Treaty, signed between the United States and the Soviet Union, prohibits the development of space based ballistic missile defenses
 - The IFX demonstration will have treaty compliance as a requirement - Compliance Review Group will be consulted

- A future SBL system will provide defense against missile attack and the potential to accomplish other missions
- The Air Force is moving out with the prudent, necessary, next step of the SBL program, the IFX project



INFRASTRUCTURE



Infrastructure

Background

- Infrastructure refers to the bases, installations, real property, and their associated physical plants including buildings, utilities, runways, and other fixed structures. Funding to support infrastructure includes base operating support (BOS), real property maintenance (RPM), military construction (MILCON), and military family housing (MFH) construction
- In the last ten years, personnel and budget expenditures dropped approximately 40%, while infrastructure decreased only 28%
- We are spending scarce defense dollars on unneeded facilities, struggling to find funds to modernize, and spreading our resources (money and manpower) across too many facilities
- Air Force recapitalizes its plant every 236 years—industry standard is 100 years

Discussion

- Shedding excess infrastructure will properly align our force structure to execute our expeditionary mission and provide additional resources to improve readiness, fund modernization, and improve quality-of-life programs
 - Quadrennial Defense Review (QDR) established that two additional rounds of base realignment and closure (BRAC) are warranted; without new BRAC authority, DoD cannot fully fund QDR strategy
 - Unneeded infrastructure has drained limited Defense funding; paying for modernization and other readiness bills has led to severe cuts in BOS, RPM, MILCON, and MFH funding

- Three-pronged approach to improve the rate at which Air Force recapitalizes its physical plant
 - Recapitalize through renovation or replacement using a combination of limited Operation & Maintenance (O&M) and MILCON funding
 - Divest physical plant through utilities privatization consistent with the Defense Reform Initiative (DRI) to privatize utility systems by FY 2003
 - Demolish 14.9 million square feet of excess facilities by FY 2003 to meet the DRI goal
 - Expected return is more mission effective and cost efficient infrastructure to accomplish the Air Force mission and provide a quality working and living environment

- Reductions in manpower and budget have far outpaced those in infrastructure
- Closing military bases will reduce excess infrastructure and allow us to take advantage of these savings to improve readiness and take care of Air Force people
- BRAC is tomorrow's readiness decision that we must begin planning

Air Force Military Construction

Background

- Total force MILCON has been drastically reduced since the mid-1980s (from a high of about \$1.8 billion in FY86 to the current \$596 million in FY01).
- Based on most urgent needs of the Air Force and integrating new mission, current mission, and environmental projects; the Air Force supports environmental, legal and treaty requirements, support weapon and space system modernization, force structure changes, readiness and infrastructure, and Quality of Life.

Discussion

- Current Air Force budgets are not sufficient to meet all of our obligations, forcing us to make painful choices between force modernization and recapitalization.
- The FY01 Air Force MILCON program is currently \$596 million. The average annual funding level across the FY02-05 Future Years Defense Program is \$604 million.
 - This level of investment equates to a recapitalization rate of 236 years.
 - The average Air Force facility is approximately 38 years old. Two-thirds of them are over 40 years old, well beyond the design life (30 years) of most buildings.
 - Aging facilities are causing continuous workarounds, frequent utility outages, lost productivity, and constant urgent repairs to failed airfield pavements.
 - Reductions in Air Force manpower and force levels have continued to outpace the elimination of unneeded infrastructure.

- This dilutes the effective use of resources at a time when the need to fund higherpriority programs is forcing the Air Force to forego needed MILCON investment.
- Air Force initiatives such as privatization and demolition can help, but are not a total solution.
- We must invest more in our essential facilities and infrastructure. This requires:
 - A more robust MILCON budget
 - The number of installations more closely matched to force size

Main Points

• Constrained Air Force funding leads to deferral of much needed infrastructure preservation and recapitalization. Inability to recapitalize our aging facilities and supporting infrastructure is negatively impacting quality of life and readiness.

Housing

Background

- Housing, both unaccompanied and family, impacts morale, retention, readiness and remains a high priority for the Air Force
- Dormitories
 - Air Force policy is to house all E-1s thru
 E-4 on-base so they learn the Air Force/military way-of-life
 - Unaccompanied enlisted personnel want and deserve privacy, privacy was their number one issue from 1995 Chief of Staff Quality Of Life survey
 - In 1997, the Air Force began a six-year implementation of a new private room assignment policy
 - Dormitory Master Plan approved by the Secretary of the Air Force and the Chief of Staff of the Air Force in August 1999; established requirements and provided roadmap for future Military Construction (MILCON) investments
 - Total requirement: 75,000 rooms, 61,000 existing rooms: Deficit: 14,000 rooms
 - AF corporate investment strategy requires annual \$80-90 million of MILCON
 - Buyout permanent party central latrine dorms - Complete with FY99 program
 - Build new dormitories to eliminate deficit - Goal FY09
 - Replace or convert worst existing dormitories - Goal FY09
 - Overseas dorms especially important due to force protection issues and Quality of Life
- Family Housing
 - 65,000 of our 106,000 housing units do need revitalization; average age is 36 years

- At current funding levels, it will take 18 years to fix houses using MILCON and privatization
- To accelerate this process, the Air Force has prepared a Family Housing Master Plan similar to our Dormitory Master Plan to guide our investments to fix our inadequate housing by FY2010
 - Master Plan provides a corporate housing investment strategy that integrates and prioritizes traditional construction and operations and maintenance funding with a measured, balanced approach to privatization partnerships
 - As part of the two-year effort to create an investment "roadmap," Air Force teams visited almost every installation to document existing conditions of base housing units, initially assess the feasibility of housing privatization and to produce installation housing master plans

- Housing impacts morale, retention, and readiness; remains a high priority for Air Force
- Air Force strategy on-track to provide privacy and adequate quarters for unaccompanied troops
- Family Housing Master Plan is the Air Force investment strategy that provides a roadmap for the Air Force to fix its inadequate housing units by FY2010 using a balanced approach of traditional MILCON, O&M and privatization initiatives





KEY AIR FORCE PROGRAMS/AIRCRAFT





A/OA-10 Thunderbolt II

Acquisition Status

- Program Status: Sustainment
- Unit Assignments: Active: Pope AFB, NC; Moody AFB, GA; Nellis AFB, NV; Osan AB, ROK Davis-Monthan AFB, AZ; Eielson AFB, AK; McClellan AFB, CA; Spangdahlem AB, GE; Guard/Reserve: Barnes MA; Bradley CT; Willow Grove PA; Martin State MD; New Orleans LA; Battle Creek MI; Boise ID; Whiteman AFB, MO
- Production: Production line closed in 1984
- Current Inventory: 368
- Projected Inventory: 368
- Contractors:
 - Fairchild Republic (Airframe)
 - General Electric (Propulsion)
 - Lockheed Martin (Major Subsystem)
- Future Upgrades: Embedded Global Positioning/Inertial Navigation System, Integrated Flight and Fire Control Computer, Smart Weapons, Digital Data Link
- Purchase Requirements: N/A

Capabilities/Profile

- Service Ceiling: 37,000 Feet
- Combat Range: ~400 NM; 5 hours duration
- Armament: General Purpose/Cluster/Laser-Guided Bombs, Maverick/Sidewinder Missiles, 2.75" Rockets, 30mm Armor-Piercing/High-Explosive Incendiary cannon shells
- Dimensions:
 - 57.4 Feet (Wing Span)
 - 53.4 Feet (Length)
 - 14.8 Feet (Height)
- Weight: Over 40,000 Pounds fully loaded

Functions/Performance Parameters

- Mission Statement: The USAF primary Close Air Support (CAS) platform. Designed specifically for battlefield support of engaged ground forces. The speed, range, loiter time and physical toughness of the airframe provide an outstanding asset to protect friendly forces and devastate enemy forces. The 30mm Gatling gun was produced specifically to destroy armored vehicles and hardened support equipment. The pilot is protected by a "titanium bathtub" manufactured to withstand repeated punishment while the airframe and powerplant incorporate redundant systems designed to ensure airworthiness if engaged by enemy anti-aircraft guns or missiles.
- Performance Parameters:
 - Top Speed: 450 KCAS/0.85 Mach



Airborne Laser (ABL)

Acquisition Status

• **Program Status:** Program Def & Risk Reduction

Unit Assignment: TBD Production: FY06-FY09 Current Inventory: None

• Projected Inventory: Seven total

• Contractors:

• Boeing (Airframe & BMC4I)

• Lockheed Martin (Optics)

• TRW (Laser)

• Future Upgrades: TBD

• Purchase Requirements: Seven a/c total (includes PDRR & EMD a/c refurbished to production configuration)

Capabilities/Profile

• Service Ceiling: 45,000 Feet

Combat Range:

• Max <u>laser</u> range against TBMs hundreds of km

• A/C: unlimited with air refueling

• **Armament:** Megawatt class high energy laser

• Dimensions:

• 211 Feet, 5 Inches (Wing Span)

• 228 Feet, 9 Inches (Length)

• 63 Feet, 8 Inches (Height)

• Weight: 800,000 Pounds (Gross Take Off Weight)

Functions/Performance Parameters

• Mission Statement: Air Combat Command directed energy weapon (DEW) with primary counter air (CA) task of killing theater ballistic missiles (TBMs) in boost (i.e. earliest) phase of flight. Also possesses inherent capability for other CA roles, e.g., protection of high value airborne assets from enemy air and missile threats, and surveillance and reconnaissance data collection. On board sensors detect boosting missile, high energy laser destroys the targets, BMC4I systems pass launch & impact data to point defense Theater Missile Defense systems and battle space commanders.

• Performance Parameters: Flight operations above clouds (i.e., ~40,000 ft), detects TBMs at long ranges (hundreds of km), and kills them within seconds. Megawatt class Chemical Oxygen-Iodine Laser (COIL) with full laser fuel load can kill 20-40 TBMs.



B-1 Lancer

Acquisition Status

- **Program Status:** Sustainment, Conventional Modifications
- Unit Assignment: Dyess AFB, TX; Ellsworth AFB, SD; Mt Home AFB, ID; McConnell AFB, KS; Robins AFB, GA
- Production: Production complete in 1988
- Current Inventory: 93
- Projected Inventory: 93
- Contractors:
 - Boeing North American (Airframe)
 - General Electric (Propulsion)
- Future Upgrades: GPS/1760/ Communications, Avionics Computers, WCMD, JSOW, JASSM, Defensive System Upgrade
- Purchase Requirements: None

Capabilities/Profile

- Service Ceiling: Over 30,000 Feet
- Combat Range: Intercontinental
- **Armament:** Mk-82, Mk-62 naval mines, CBU-87/89/97, JDAM, ALE-50 towed decoy, Chaff and Flares
- Dimensions:
 - 137 Feet (Wing Span, wings forward)
 - 78 Feet (Wing Span, wings aft)
 - 147 Feet (Length)
 - 34 Feet (Height)
- Weight: 477,000 Pounds (Gross Weight)

Functions/Performance Parameters

- Mission Statement: Long-range, high speed, large payload Global Attack capability. The B-1 provides flexibility of being employed from outside or from within the theater of operations. Force packaging with other strike assets is made possible by the B-1's high speed capability. Conducts all-weather, deep strike and night air-to-surface attack.
- Performance Parameters:
 - Top Speed: 1.2 Mach (.95 Mach low altitude)
 - Payload:
 - 84 general purpose bombs/naval mines
 - 30 cluster bombs (CBU-87/89/97);
 - 24 JDAM



B-2 Spirit

Capabilities/Profile

• Service Ceiling: 50,000 Feet

• Combat Range: Unlimited with air refueling

• **Armament:** JDAM, GBU-37/B, Mk 82, Mk 62, Mk 84, M-117, CBU 87/89/97, B-83, B-61/7, B-61/11

• Dimensions:

- 172 Feet (Wing Span)
- 69 Feet (Length)
- 17 Feet (Height)
- Weight: 336,500 Pounds (Gross Weight)

Acquisition Status

- Program Status: Post-production Support
- Unit Assignment: Whiteman AFB, MO
- **Production:** Production Line Closed, Modline Open thru FY02
- Current Inventory:
 - 21
 - 14 Block 30
 - 7 in modification line
- Projected Inventory: 21 Block 30
- Contractors:
 - Northrop B-2 Division (Prime)
 - General Electric (Propulsion)
 - Hughes, Boeing (Major Subsystems)
- Future Upgrades: Low Observable materials, Air Force Mission Support System, Defense Management System, Communications, Joint Standoff Weapon, Joint Air-to-Surface Standoff Missile.
- Purchase Requirements: N/A

Functions/Performance Parameters

- Mission Statement: Multi-role bomber able to deliver both conventional and nuclear munitions with the added benefits of stealth capability. Ready to attack the enemy's warmaking potential, especially those critical targets which, if not destroyed in the first hours of conflict, would allow unacceptable damage to be inflicted on the friendly side. It is the Air Force's only all-weather hard/deeply buried conventional strike capability.
- **Performance Parameters:** High subsonic, 50,000 feet, 40,000 lbs payload, conventional or nuclear.



B-52H Stratofortress

Acquisition Status

• Program Status: Sustainment

• Unit Assignments:

• Barksdale AFB, LA (Active & Reserve)

• Minot AFB, ND

• Production: Production Line closed in 1962

Current Inventory: 94Projected Inventory: 76

• Contractors:

• Boeing (Airframe)

• Pratt & Whitney (Propulsion)

• ITT (Major Subsystem)

• Future Upgrades: Global Positioning System, Situational Awareness Upgrades, ARC-210 multi-mode radio, JSOW, WCMD, JASSM, LRCM, Link-16

• Purchase Requirements: N/A

Capabilities/Profile

• Service Ceiling: 50,000 Feet

• Combat Range: Unlimited with air refueling

• Armament: Conventional and Nuclear Cruise Missiles, General Purpose/Cluster/ Laser-Guided Bombs (cannot self-lase), Have Nap Missile, Harpoon Anti-ship Missile, Nuclear Bombs, Naval Mines, JDAM

• Dimensions:

• 185 Feet (Wing Span)

• 159.3 Feet (Length)

• 40.7 Feet (Height)

• Weight: Over 488,000 Pounds fully loaded

Functions/Performance Parameters

• Mission Statement: Workhorse of the conventional bomber fleet possessing intercontinental range and a large/diverse weapons payload. Tasked with nuclear SIOP and conventional responsibilities. Sole aircraft to employ cruise missiles. Only bomber able to employ the Harpoon anti-ship missile, and precision munitions such as the Have Nap missile and laser guided bombs (cannot self-lase). Can attack time-sensitive targets during the critical initial phase of conflict. Reduces the enemy's air defense and command and control systems effectiveness, and power generation ability using standoff and precision munitions. Deploys forward to add mass and depth in sustained operations. Venerable aircraft whose airframe is certified to the year 2040.

• Performance Parameters:

• Top Speed: 390 KCAS/0.84 Mach

• Weapons Payload: 36,000 lbs.



C-5 Galaxy

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Altus AFB, OK; Dover AFB, DE; Kelly ARB, TX; Stewart IAP, NY; Travis AFB, CA; Westover ARB, MA

• Production: Completed in 1988

Current Inventory: 126Projected Inventory: 126

• Contractors:

• Lockheed Martin (Airframe)

• General Electric (Propulsion)

• Future Major Upgrades: GPS, Avionics, Nav/Safety and GATM

• Purchase Requirements: None

Capabilities/Profile

• Service Ceiling: 45,000 Feet

• **Range:** 6,300 NM (unrefueled ferry range); (unlimited with in-flight refueling)

• Cruising Speed: 0.74—0.77 MACH

• Armament: None

• Dimensions:

• 222 Feet (Wing Span)

• 247 Feet (Length)

• 65 Feet (Height)

• Cargo Compartment: 121 x 19 x 13.5 feet

• Maximum Gross Weight: 840,000 Pounds

Functions/Performance Parameters

• Mission Statement: Strategic delivery of cargo and passengers via airland operations. Strategic special operations platform.

• **Performance Parameters:** (based on 3,200 nm leg)

• Cruise Speed: 420 knots

• Cargo Weight: 120,000 pounds (291K max)

• Passenger Capacity: 51 persons (73 max)*

*Cargo and Passengers are inclusive of one another



C-9A/C

Capabilities/Profile

• Service Ceiling: 35,000 Feet

• Range: >1,739 NM • Armament: None

• Dimensions:

• 93 Feet (Wing Span)

• 119 Feet (Length)

• 27 Feet (Height)

• Maximum Gross Weight: 108,000 Pounds

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: C-9A: Chievres, Belgium; Ramstein AB, GE; Yokota AB, JP; Scott AFB, IL; C-9C: Andrews, AFB, MD

Production: CompletedCurrent Inventory: 23Projected Inventory: 23

• Contractors:

• Douglas (Airframe)

• Pratt & Whitney (Propulsion)

• Douglas (Major Subsystem)

• Future Major Upgrades: Hush Kits, Reduced Vertical Separation Minima, Terrain Avoidance Warning System (TAWS), Global Air Traffic Management (GATM)

• Purchase Requirements: None

Functions/Performance Parameters

- Mission Statement:
 - C-9A--Provide regularly scheduled and emergency no-notice air travel for hospital patients and medical evacuees.
 - C-9C--Provide safe, comfortable, and reliable air travel for: U.S. President, Vice President, First Lady, SECDEF, SECSTATE, other cabinet members, Congressional Delegations and Foreign Dignitaries.
- Performance Parameters:
 - Top speed: 565 mph (Mach 0.86)
 - Load: 40 litter patients or four litters and 40 ambulatory patients or other combinations



C-17 Globemaster III

Acquisition Status

• **Program Status:** Acquisition Phase III, Production, Fielding, & Deployment

• Unit Assignment: Altus AFB, OK; Charleston AFB, SC; McChord AFB, WA; Thompson Field, MS (scheduled)

• Production: Last delivery Mar 2006

Current Inventory: 54Projected Inventory: 134

• Contractors:

• Boeing Aircraft (Airframe)

• Pratt & Whitney (Propulsion)

• Future Upgrades: Global Air Traffic Management (GATM)/Nav Safety; Engine Upgrades; Operational & Reliability Improvements

• **Purchase Requirements:** 13/15/15/15/6/5/8 in 99/00/01/02/03/04/05 respectively

Capabilities/Profile

• **Service Ceiling:** 45,000 Feet (at crusing speed)

Range: Global with in-flight refueling
Cruising Speed: 0.74 - 0.77 MACH

• Armament: N/A
• Dimensions:

• 169.8 Feet (Wing Span)

174 Feet (Length)55.1 Feet (Height)

• Cargo Compartment: 88 x 18 x 12.3 Feet

• Maximum Gross Weight: 585,000 Pounds

Functions/Performance Parameters

• Mission Statement:

• Wide-body aircraft capable of airlifting outsized and oversized payloads over intercontinental ranges, with or without in-flight refueling

• Rapid direct delivery of forces by airland or airdrop into austere tactical environments

• Capable of performing both intertheater and intratheater airlift missions

• **Performance Parameters:** (based on 3,200nm leg)

• Speed: 421 knots

• Payload: 110,000 pounds

• Passenger capacity: 102 persons



C-20A/B/H

Capabilities/Profile

Service Ceiling: 45,000 FeetRange: 4,175 Nautical Miles

• Armament: None

• Dimensions:

• 78 Feet (Wing Span)

83 Feet (Length)25 Feet (Height)

• Weight: 69,700 Pounds (Max Gross Wt)

• **Speed:** 576 mph (Mach 0.80)

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Andrews

• **Production:** Complete (1989)

• Current Inventory: 10

• Projected Inventory: 10

• Contractors:

• Gulfstream Aerospace (Airframe)

• Rolls Royce (Propulsion)

• Future Upgrades: Global Positioning System (GPS), Terrain Collision Avoidance System (TCAS), Reduced Vertical Separation Minima (RVSM), Global Air Traffic Management (GATM)

• Purchase Requirements: None

Functions/Performance Parameters

• **Mission Statement:** Provides transportation for the vice president, cabinet and congressional members, and other high-ranking U.S. and foreign officials.

• Performance Parameters: The C-20A/B and C-20H airframe is identical to that of the Gulfstream 3/4, respectively, but has different interior furnishings and electronic equipment. The aircraft is divided into three sections: The forward area consists of the cockpit and communications center (the C-20 H also includes a lavatory in this section). The center section is designed as an airborne VIP area, with conference tables, telephone connectivity, swivel chairs, and a convertible sofa-bunk. The rear section of the cabin contains single and double reclining passenger seats, tables, telephone connectivity, galley, a lavatory and closets.



C-21A

Capabilities/Profile

• Service Ceiling: 51,000 Feet

• Range: 2,005 NM • Armament: None

• Dimensions:

• 39 Feet (Wing Span)

• 48 Feet (Length)

• 12 Feet (Height)

• Maximum Gross Weight: 18,300 Pounds

Acquisition Status

- Program Status: Completely Fielded
- Unit Assignment: Langley AFB, VA; Andrews AFB, MD; Wright-Patterson AFB, OH; Scott AFB, IL; Offutt AFB, NE; Peterson AFB, CO; Randolph AFB, TX; Maxwell AFB, AL; Keesler AFB, MS; Ramstein AB, GE; Stuttgart AB, GE; Yokota AB, JP; Saudi Arabia

• Production: Completed

• Current Inventory: 81

• Projected Inventory: 81

• Contractors:

• Learjet (Airframe)

• Allied Signal (Propulsion)

• Raytheon (Major Subsystem)

• Future Major Upgrades: Global Air Traffic Management (GATM) /Terrain Collision Avoidance System (TCAS)

• Purchase Requirements: None

Functions/Performance Parameters

- Mission Statement: Provide cargo and passenger airlift over short ranges, into short unimproved fields. Operates in austere conditions and can be configured to transport litters during medical evacuations.
- Performance Parameters:
 - Top speed: 530 mph (Mach 0.81)
 - Load: 8 passengers and 42 cubic feet of cargo.



CV-22 Osprey

Acquisition Status

• **Program Status:** Manufacturing Development

• Unit Assignment: Hurlburt Field, FL; Kirtland AFB, NM

• **Production:** Through FY07

Current Inventory: 0Projected Inventory: 50

• Contractors:

• Bell Boeing (Airframe)

• Allison (Propulsion)

• Raytheon (TF/TA Radar)

• Future Upgrades: TBD

• Purchase Requirements: 50 aircraft

beginning in FY01

Capabilities/Profile

• Service Ceiling: 26,000 ft

• Combat Range: Unlimited with air refueling

• Armament: TBD

• Dimensions:

• 84.6 Feet (Wing Span)

• 57.3 Feet (Length)

• 22.1 Feet (Height)

• Weight:

• 34,900 Pounds (Gross Weight Empty)

• 52,600 Pounds (Max VTO Weight)

• 57,000 Pounds (Short Takeoff Weight)

• 60,500 Pounds (Self Deploy Weight)

Functions/Performance Parameters

• Mission Statement: CV-22 will conduct long-range, adverse weather, clandestine penetration of medium to high threat environments in politically or militarily denied areas to execute personnel recovery operations, infiltrate, exfiltrate, and resupply Special Operations Forces (SOF), and support the counter-proliferation of weapons of mass destruction (CP/WMD) mission area

• Performance Parameters:

- 230 Knot cruise speed
- 500 nautical mile radius (unrefueled)
- 18 troop (SOF equipped) capacity



VC-25

Capabilities/Profile

• Service Ceiling: 45,100 ft

• Range: 6,800 NM (unrefueled ranged)

• Armament: None

• Dimensions:

• 196 Feet (Wing Span)

• 232 Feet (Length)

• 63 Feet (Height)

• Maximum Gross Weight: 833,000 Pounds

• **Speed:** 630 mph (Mach 0.92)

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Andrews AFB, MD

Production: CompletedCurrent Inventory: 2Projected Inventory: 2

• Contractors:

• Boeing Airplane Co. (Airframe)

• Pratt & Whitney (Propulsion)

• Future Major Upgrades:

• Predictive Windshear Warning System

• Global Positioning System (GPS)

• Global Air Traffic Management (GATM)

• Terrain Avoidance Warning System (TAWS)

• Purchase Requirements: None

Functions/Performance Parameters

• **Mission Statement:** Provides air transportation for the President of the United States.

• Performance Parameters: Includes electronic and communications equipment, and accommodations for the President. Two galleys provide up to 100 meals at one sitting. Six passenger lavatories (including handicap facilities) are provided as well as a rest area and mini-galley for the aircrew. It also includes a compartment outfitted with medical equipment and supplies, a self-contained baggage loader, front and aft airstairs, and the capability for inflight refueling.



C-26B

Capabilities/Profile

• Service Ceiling: 25,000 ft

• Combat Range: 1200 Nautical Miles

• Armament: None

• Dimensions:

• 57.0 Feet (Wing Span)

• 59.35 Feet (Length)

• 16.66 Feet (Height)

• Weight:

• 16,500 Pounds (Gross Weight)

Acquisition Status

• Program Status: Sustainment.

• Unit Assignment: Alabama, Arizona, California, Florida, Mississippi, New Mexico, New York, Texas, Washington, Wisconson

Current Inventory: 11Projected Inventory: 11

• Contractors:

• Fairchild (Airframe)

• Garrett/Allied Signal (Propulsion)

• Future Upgrades: New forward-looking Infrared (FLIR), Electro-optical camera upgrade

• Purchase Requirements: None

Functions/Performance Parameters

• Mission Statement: The counterdrug C-26 assists local law enforcement agents in the detection of illegal drug activities to include (but not limited to): marijuana growth; location of clandestine air strips; drop zones; border crossing points; maritime areas; locations of roads, trails or assembly areas that may be supporting illicit drug activities, etc. This system is capable of providing counterdrug support both day and night.

• Performance Parameters: Top speed: 250 Kts. The aircraft is equipped with two framing cameras mounted vertically and obliquely, an infra-red camera, and a video camera. Onboard situational awareness equipment displays current position, altitude, and speed to aid in target acquisition, tracking and photographing. The electro-optical upgrade will allow onboard photographic data processing and, eventually, real-time transfer to ground site.



C-32A

Capabilities/Profile

• Service Ceiling: 41,000 ft

Range: 5000 NMArmament: None

• Dimensions:

• 125 Feet (Wing Span)

• 155 Feet (Length)

• 44.5 Feet (Height)

• Weight:

• 255,000 lbs (Max Gross Weight)

• **Speed:** 530 mph (Mach 0.8)

• Payload: 45 passengers and 16 crew

Acquisition Status

• **Program Status:** Production, Fielding, and Deployment

• Unit Assignment: 89AW, Andrews AFB, MD

• Production: Commercial Aircraft

• Current Inventory: 4

• Projected Inventory: 4, last delivery Dec 98

• Contractors:

• Boeing (Airframe)

• Pratt & Whitney (Engines)

• Future Upgrades: GATM, Mission Comm

• Purchase Requirements: None

Functions/Performance Parameters

• Mission Statement: Provides transportation for the Vice President, cabinet, congressional delegations, and other senior U.S. officials.

• Performance Parameters:

• Replaced C-137B/C

• The C-32A is a commercial Boeing 757-200 with interior furnishings and electronic equipment to accommodate seniorGovernment officials. The cabin area is equipped with a communications center, two galleys, a crew rest facility, DV compartment with sleeping accommodations, and first andbusiness class seating with work tables.



C-37A

Capabilities/Profile

• Service Ceiling: 51,000 ft

• Range: 5300 NM • Armament: None

• Dimensions:

• 93.5 Feet (Wing Span)

96.5 Feet (Length)26 Feet (Height)

• Weight: 90,500 lbs (Max Gross Weight)

• **Speed:** 530 mph (Mach 0.8)

• Payload: 12 passengers and 5 crew

Acquisition Status

• **Program Status:** Production, Fielding, and Deployment

• Unit Assignment: 89AW, Andrews AFB, MD

• Production: Commercial Aircraft

• Current Inventory: 2

• Projected Inventory: 2, last delivery Dec 98

• Contractors:

• Gulfstream (Airframe)

• BMW/Rolls Royce (Engines)

• Future Upgrades: None

• Purchase Requirements: Two primary

aircraft in FY97

Functions/Performance Parameters

• Mission Statement: Provides transportation for the Vice President, cabinet and congressional members, and other senior U.S. officials.

• Performance Parameters:

• Replaces aging C-137

• The C-37A is a commercial Gulfstream V with interior furnishings and electronic equipment to accommodate senior Government officials. The cabin area is equipped with a communications center, galley, DV compartment, and first and business class seating with work tables.



C-130E/H Hercules

Capabilities/Profile

• Service Ceiling: 33,000 ft

Range: 3000 NMArmament: None

• Dimensions:

• 132 Feet (Wing Span)

97 Feet (Length)39 Feet (Height)

• Maximum Gross Weight: 155,000 lbs

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Little Rock AFB, AR; Pope AFB, NC; Dyess AFB, TX; Elmendorf AFB, AK; Yokata AB, JP; Ramstein AB, GE

• Production: C-130E/H Closed, C-130J Open

Current Inventory: 519Projected Inventory: 519

• Contractors:

• Lockeed Martin (Airframe)

• Allison (Propulsion)

• Future Upgrades: Electrical System Upgrade, Airlift Defensive Systems, Enhanced Traffic Collision and Avoidance System, C-130X Avionics Modernization Program

Functions/Performance Parameters

• Mission Statement: The C-130E/H provides rapid transportation of personnel or cargo for delivery day or night with parachute or landing. Adverse Weather Aerial Delivery System equipped aircraft have the additional capability of performing airdrops without external assistance in inclement weather. It can also be used for Aeromedical Evacuation of injured troops.

• Performance Parameters:

• The C-130 can takeoff and land on short, unimproved runways normally found during austere operations. Top speed is 374 knots. Maximum payload of 45,000 lobs of cargo or 92 ground troops, or 64 paratroops.



C-130J

Capabilities/Profile

• Service Ceiling: 30,560 ft

• **Range:** 3,600 Nautical Miles, Global with in-flight refueling (EC-130J)

• Armament: N/A

• Dimensions:

• 132.6 Feet (Wing Span)

• 97.8 Feet (Length)

• 38.8 Feet (Height)

• Weight: 175,000 Pounds (Gross Weight)

Acquisition Status

- **Program Status:** Acquisition Phase III, Production, Fielding, & Deployment
- Unit Assignment: Keesler AFB, MS; Baltimore, MD; Harrisburg, PA; Quonset, RI
- Current Inventory:
 - 10 accepted (7 C-130Js, 2 WC-130Js, 1 EC-130J)
 - 18 aircraft on contract: 5 C-130Js, 3 C-130J-30s, 8 WC-130Js, 2 EC-130Js
 - 1 aircraft in FY00: 1 EC-130J
- Projected Inventory: 168
- Contractors:
 - Lockheed Martin (Airframe)
 - Allision (Propulsion)
- Future Upgrades: GATM/Nav Safety/ EC-130s undergo follow-on mod program at Lockheed Skunk Works
- **Purchase Requirements:** 10 WC-130Js, 8 EC-130Js, 12 C-130Js, 138 C-130J-30s

Functions/Performance Parameters

- Mission Statement:
 - C-130J/J-30 Immediate movement of combat troops & supplies within theaters of operation
 - WC-130J Weather reconnaissance
 - EC-130J Psychological operations
- Performance Parameters:
 - Crusing speed: 342 knots
 - Payload:

Short vs. Stretch

Load Comparisions

Cargo Floor Length	C-130E/H/J	C-130J-30	Increase
463L Pallets	40 ft	55 ft	37%
Medical Litters	5	7	40 %
CDS Bundles	74	97	31 %
Combat Troops	92	128	39 %
Paratroopers	64	92	44 %



AC-130H SPECTRE

Acquisition Status

• Program Status: Sustainment

• Current Inventory: 8

• Unit Assignment: Hurlburt Fleld, FL

• Contractors:

Boeing

• Integrated Weapon System Support (IWSS)

• Future Upgrades: Direct Infared Counter Measure (DIRCM); C-130 Avionics Modernizatin Program (AMP)

• Purchase Requirements: None

Capabilities/Profile

• Service Ceiling: 25,000 ft

• Combat Range: Unlimited (air refuelable)

• Crew Complement: 14 -- five officers (pilot, co-pilot, navigator, fire control officer, electronic warfare officer); nine enlisted (flight engineer, loadmaster,low-light TV operator, infrared detection set operator, five aerial gunners).

• Dimensions:

• 132 Feet (Wing Span)

• 99 Feet (Length)

• 38 Feet (Height)

• Weight: 155,000 Pounds (Gross Weight)

Functions/Performance Parameters

• Mission Statement: The AC-130H Spectre gunship's primary missions are close air support, air interdiction and armed reconnaissance. Other missions include perimeter and point defense, escort, landing, drop and extraction zone support, forward air control, limited command and control, and combat search and rescue.

• Performance Parameters:

• Power Plant: Four Allison T-56-A-15 turboprop engines

• Thrust: 4,910 shaft horsepower each engine

• Speed: 289 miles per hour (464 kilometers per hour) at sea level



AC-130U Spooky

Capabilities/Profile

• Service Ceiling: 25,000 ft

• Combat Range: Unlimited (air refuelable)

• Crew Complement: 13 -- Two pilots, navigator, fire control officer, electronic warfare officer, flight engineer, loadmaster, low-light TV operator, five aerial gunners.

• Dimensions:

- 132 Feet (Wing Span)
- 99 Feet (Length)
- 38 Feet (Height)
- Weight: 155,000 Pounds (Gross Weight)

Acquisition Status

• Program Status: Sustainment

• Current Inventory: 13

• Unit Assignment: Hurlburt Fleld, FL

• Contractors: Rockwell

• Future Upgrades: Direct Infared Counter

Measure (DIRCM); C-130 (AMP)
• Purchase Requirements: None

Functions/Performance Parameters

• Mission Statement: The AC-130U Spooky gunship's primary missions are close air support, air interdiction and armed reconnaissance. Other missions include perimeter and point defense, escort, landing, drop and extraction zone support, forward air control, limited command and control, and combat search and rescue.

- Power Plant: Four Allison T-56-A-15 turboprop engines
- Thrust: 4,910 shaft horsepower each engine
- Speed: 289 miles per hour (464 kilometers per hour) at sea level



EC-130E Commando Solo

Acquisition Status

- **Program Status:** Sustainment; current aircraft will be replaced by new C-130J aircraft
- Current Inventory: 6
- Projected Inventory: 6
- Unit Assignment: 193rd Special Operations Wing (ANG), Harrisburg, PA

Capabilities/Profile

- Service Ceiling: 20,000 ft
- Combat Range: Unlimited (air refuelable)
- Crew Complement: Crew complement is 11 crewmembers; aircraft commander, pilot, nav, flight engineer, loadmaster, mission control chief, and five electronic communications specialists.
- Dimensions:
 - 132 Feet (Wing Span)
 - 100 Feet (Length)
 - 38 Feet (Height)
- Weight: 155,000 Pounds (Gross Weight)

- Mission Statement: Conducts psychological operations and civil affairs broadcast in the AM, FM, HG, TV, and military communications bands. Typical mission consists of a single-ship orbit which is offset from the desired target audience. The targets may be either military or civilian personnel.
- **Secondary Mission:** Command and control communications countermeasures (C3CM) and limited intelligence gathering.
- Performance Parameters:
 - Power Plant: Four Allison T-56-A-1S turboprops
 - Thrust: 4,200 (equivalent shaft hp each)
 - Speed: 240-260KTAS



EC-130H Compass Call

Acquisition Status

- **Program Status:** Sustainment; 1st Sqn Block 30 reached IOC, Feb99. Blk 35 will convert Blk 20 to Blk 35 and remaining Blk 30s to Blk 35. Brings fleet to common configuration and upgrades outdated receiver systems to accommodate current C2 systems.
- Unit Assignment: 41st and 42nd Electronic Combat Sqdns located at Davis Monthan AFB, AZ
- **Production:** Block 35 starts in FY01, completes FY07
- Current Inventory: Block 20 6 A/C; Block 30 7A/C
- Projected Inventory: 13 Block 35 in FY07
- Contractors:
 - Prime Integrator LMSW (Palmdale, CA)
 - Prime Systems Integrators Sanders, NH
- Associate Contractors: Raytheon IN
 - General Dynamics (formerly GTE CA)
- **Future Upgrades:** Improved Offensive Counter Information (OCI) capabilities... Block 40

Capabilities/Profile

- Service Ceiling: 25,000 ft
- Combat Range: Unlimited (air refuelable)
- Prime Mission Avionics: 8 mission crew members using computerized, command and control warfare (C2W) jamming system comprised of integrated receivers, processors, and graphics consoles coupled with high speed jamming subsystems.

• Dimensions:

- 132 Feet (Wing Span)
- 99 Feet (Length)
- 38 Feet (Height)
- Weight: 155,000 Pounds (Gross Weight)

- Mission Statement: Provides Offensive Counter Information (OCI) capabilities to the Joint Forces Air Component Commander (JFACC) through the spectrum of war (PSO - War - transition to peace). Provides communications jamming.
- Performance Parameters: Classified



MC-130E/H Combat Talon

Acquisition Status

- Program Status: Sustainment
- Current Inventory: 14 MC-130E Talon I 24 MC-130H Talon II, Total of 38 MC-130E/Hs
- Unit Assignment: Hulburt Field, FL; Kirtland AFB, NM; RAF Mildenhall, UK; Kadena AB, JP; Duke Field, FL
- Contractors: Boeing for Integrated Weapon Systems Support (IWSS)
- Future Upgrades: Direct Infared Counter Measure (DIRCM), C-130 Avionic Modernization Program (AMP), and Helo Aerial Refueling capability for MC-130H
- Purchase Requirements: None

Capabilities/Profile

- Service Ceiling: 30,000 ft
- Combat Range: Unlimited (air refuelable)
- **Crew Complement:** 4 officers (two pilots, one navigator and one electronic warfare officer) and three enlisted (one flight engineer and two loadmasters).

• Dimensions:

- 132 Feet (Wing Span)
- 99 Feet (Length)
- 38 Feet (Height)

• Weight:

• 155,000 Pounds (Gross Weight)

- Mission Statement: The mission of the MC-130E Combat Talon I and MC-130H Combat Talon II is to provide global, day, night and adverse weather capability to airdrop and airland personnel and equipment in support of U.S. and allied special operations forces. The MC-130E also has a deep penetrating helicopter refueling role during special operations missions.
- Performance Parameters:
 - Power Plant: Four Allison T56-A-15 turbroprop engines
 - Thrust: 4,910 shaft horsepower each engine
 - Speed: 289 miles per hour (464 kilometers per hour) at sea level



MC-130P Combat Shadow

Acquisition Status

- Program Status: Sustainment
- Unit Assignment: Duke Field, FL; Eglin AFB, FL; Mildenhall AB, UK; Kadena AB, JP
- Contractors: Boeing
- Future Upgrades: Future cockpit mods under C-130 Avionics Modernization Program (AMP).

Capabilities/Profile

Service Ceiling: 30,000 ftCombat Range: 3,500 NM

• Crew Complement: 4 officers (pilot, co-pilot, primary navigator, secondary navigator), and four enlisted (flight engineer, communications systems operator and two loadmasters).

• Dimensions:

- 132 Feet (Wing Span)
- 99 Feet (Length)
- 38 Feet (Height)

• Weight:

• 155,000 Pounds (Gross Weight)

Functions/Performance Parameters

• Mission Statement: The MC-130P Combat Shadow flies clandestine or low visibility, low-level missions into politically sensitive or hostile territory to provide air refueling for special operations helicopters. The MC-130P primarily flies its single- or multi-ship missions at night to reduce detection and intercept by airborne threats. Secondary mission capabilities include airdrop of small special operations teams, small bundles, and zodiac and combat rubber raiding craft; as well as night-vision goggle takeoffs and landings.

- Power Plant: Four Allison T56-A-15 turbroprop engines
- Thrust: 4,910 shaft horsepower each engine
- Speed: 289 miles per hour (464 kilometers per hour) at sea level



C-137C

Capabilities/Profile

• **Service Ceiling:** 42,000 Feet • **Range:** 6,000 NM (ferry range)

• Armament: None

• Dimensions:

• 146 Feet (Wing Span)

• 153 Feet (Length)

• 43 Feet (Height)

• Maximum Gross Weight: 322,000 Pounds

• **Speed:** 530 mph (Mach 0.81)

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Andrews AFB, MD

• **Production:** Completed in 1972

• Current Inventory: 2

• **Projected Inventory:** 1 after Apr 99. Last aircraft scheduled to retire in Sep 00.

• Contractors:

• Boeing Airplane Co. (Airframe)

• General Electric (Propulsion)

• Future Major Upgrades: None

• Purchase Requirements: None

Functions/Performance Parameters

• **Mission Statement:** Provides transportation for the vice president, cabinet and congressional members, and other high-ranking U.S. and foreign officials.

• Performance Parameters: The C-137B/C body is identical to that of the Boeing 707, but has different interior furnishings and electronic equipment. The passenger cabin is divided into three sections: The forward area has a communications center, galley, lavatory and an eight-seat compartment. The center section is designed as an airborne headquarters with conference tables, swivel chairs, projection screen for films and two convertible sofa-bunks. The rear section of the cabin contains double reclining passenger seats, tables, galley, two lavatories and closets. Partitions may be placed throughout the cabin for added privacy.



C-141 Starlifter

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Altus AFB, OK; Andrews AFB, MD; Charleston AFB, SC; Jackson ANGB, MS; March ARB, CA; McChord AFB, WA; McGuire AFB, NJ; Wright-Patterson AFB, OH; Memphis IAP, TN

• Production: Completed in 1968

• **Current Inventory:** Drawing down from 136 total aircraft as of 1 Oct 99

• **Projected Inventory:** 0 by FY06

• Contractors:

• Lockheed Martin (Airframe)

• Pratt Whitney (Propulsion)

• Current Upgrades: GPS, TCAS/TAWS, Avionics

• Purchase Requirements: None

Capabilities/Profile

• Service Ceiling: 45,000 Feet

• **Range:** 4,600 NM (unrefueled ferry range) (unlimited with in-flight refueling)

• Cruising Speed: 0.74 MACH

• Dimensions:

• 160 Feet (Wing Span)

• 168 Feet (Length)

• 39 Feet (Height)

• Armament: None

Cargo Compartment: 93 x 10.3 x 9 Feet
Maximum Gross Weight: 343,000 Pounds

Functions/Performance Parameters

• **Mission Statement:** Strategic delivery of cargo, passengers, and patients via airland and/or airdrop. Primary strategic special operations and airdrop platform.

• **Performance Parameters:** (based on 3,200nm leg)

• Cruise Speed--405 knots

• Cargo Weight--38,000 pounds (60K max)

• Passenger Capacity--120 persons (153 max)*

^{*}Cargo and Passengers are exclusive of one another



E-3 Airborne Warning and Control System (AWACS)

Acquisition Status

- Program Status: Sustainment
- Units of Assignment: Tinker AFB, OK; Elmendorf AFB, AK; Kadena AFB, JP
- **Production:** Deployed March 1977; Planned modification programs thru end of FY10
- **Current Inventory:** 33 (32 operational, plus 1 test asset)
- Contractors:
 - Boeing (Prime Contractor)
 - Northrop Grumman (Radar)
 - Lockheed Martin (Computer)
- **Planned Upgrades:** Block 30/35, Radar System Improvement Program (RSIP), Block 40/45 Computers and Displays
- Purchase Requirements: N/A

Capabilities/Profile

• Service Ceiling: 38,000 Feet

• Combat Range: Unlimited with air refueling

• Armament: N/A

• Dimensions:

- 130 Feet, 10 Inches (Wing Span)
- 145 Feet, 6 Inches (Length)
- 41 Feet, 4 Inches (Height)
- Weight: 347,000 Pounds

- Mission Statement: AWACS provides all altitude surveillance, warning, and battle management for worldwide air combat operations
- Performance Parameters:
 - Speed: Optimum cruise Mach 0.78
 - Endurance: 8 Hours (unrefueled)
 - Operational Crew Makeup:
 - Flight crew: 4
 - Mission crew: 13-19
 - Officer and enlisted specialists
 - Crew size varies according to mission



E-4B National Airborne Operations Center (NAOC)

Acquisition Status

- Program Status: Sustainment
- Unit Assignment: Offut AFB, NE
- Production:
 - Last E-4A delivered Jul 73
 - Last E-4B delivered Jan 85
- Current Inventory: 4
- Projected Inventory: 4
- Contractors:
 - Boeing Aerospace
 - General Electric
 - Rockwell
 - Raytheon E-Systems
 - Boeing North America
- Future Upgrades: Modernization upgrades of Communications package in addition to nav/safety mods.
- Purchase Requirements: None

Capabilities/Profile

- Service Ceiling: above 40,000 Feet
- Combat Range: 6,000+ NM air refueling capable 72 hours (air refueled)
- Armament: N/A
- Dimensions:
 - 195 Feet, 8 inches (Wing Span)
 - 231 Feet, 4 inches (Length)
 - 63 Feet, 5 inches (Height)
- Weight: 800,000 Pounds (Gross Weight)

Functions/Performance Parameters

- Mission Statement: Provides the National Command Authority (NCA) with a National Airborne Operations Center (NAOC)
 - Most survivable node of National Military Command System (NMCS);
 On alert to provide NCA full spectrum survivable C2
 - Provides SecDef OCONUS C2 mission support
 - Supports Federal Emergency Management Agency (FEMA) during crisis response

- For NCA mission total manifest of 114: 63 crew/battle staff; 51 passengers
- For SecDef Mission: 33 crew; 81 passengers
- Hardened against Electromagnetic Pulse (EMP)
- Robust communications useful in a nuclear disturbed environment



E-8C **Joint STARS**

Acquisition Status

• Program Status: Production/Operational

• Unit Assignment: Robins AFB, GA

• **Production:** Through February 2003

• Current Inventory: 5 E-8Cs delivered to ACC

• Projected Inventory: 14 E-8Cs

Contractors:

• Northrop Grumman (prime)

• Motorola (prime for Army CGSs)

• CUBIC (sub for secure data link to Army ground stations)

• Raytheon (sub for general purpose computers and prime for acft contractor logistics support)

• Future Upgrades: Computer Replacement Program (CRP), Radar Technology Insertion Program (RTIP), SATCOM, Link16 Upgrades

• Purchase Requirements: 1 in FY00 (P14)

Capabilities/Profile

• Aircraft Type: Modified 707-300 Series

Aircraft Performance:

• Service Ceiling: 42,000 Feet • Range/Duration: 11hrs, 20hrs

w/inflight refuel

Max Airspeed: .84 Mach

• Dimensions:

• 130 Feet, 10 Inches (Wing Span)

• 152 Feet, 11 Inches (Length)

• 42 Feet, 6 Inches (Height)

• Weight: 336,000 Pounds (Gross Weight)

Functions/Performance Parameters

• Mission Statement: Joint STARS is a joint Army/Air Force program designed to enhance battle management by providing air/land component commanders with near-real time wide-area surveillance and targeting information on moving and stationary ground targets, slow moving rotary and fixed winged aircraft, rotating antennas and Theater Missile Defense targets of interest.

- Multi-mode, phased array radar; equipped with both Moving Target Indicator (MTI) and Synthetic Aperture Radar (SAR)
- Wide area/small area surveillance with rapid revisit
- Robust ECCM, joint mission crew, 17 multi-purpose workstations, allows rapid deployment, self-contained operation
- Secure Surveillance and Control Data Link (SCDL) to Army Common Ground Stations (CGSs); Link 16 to Joint C3I nodes



F-15 Eagle

Acquisition Status

- Program Status:
 - Production of F-15E attrition reserve aircraft
 - Modification/sustainment of fielded F-15s
- Unit Assignment: Worldwide
- **Production:** Last F-15 (F-15E) delivers Feb 00
- **Current Inventory:** 729 F-15A/B/C/D/E (12 a/c on-contact, in-production)
- Projected Inventory: 741
- Contractors:
 - Boeing (Airframe)
 - Pratt & Whitney (Propulsion)
 - Raytheon (Radar)
- Future Upgrades: Radar & Engine Upgrades, GPS/Smart Weapons Integration, Helmet Cueing, Data Link Capability, Full Band EW protection
- **Purchase Requirements:** Congress directed procurement of 5 additional F-15E in FY00. Not reflected in projected inventory pending development of acquisition strategy.

Capabilities/Profile

- Service Ceiling: 65,000 Feet
- Combat Range: 220-1300 Nautical Miles (varies with loadout & mission)

• Armament:

- F-15A/B/C/D: Missiles (Air-to-Air) AIM-7/-9/-120, 20mm Cannon
- F-15E: Adds Missiles/Bombs (Air-to-Ground) Gen Purpose, GBUs, CBUs, Maverick

• Dimensions:

- 42.8 Feet (Wing Span)
- 63.8 Feet (Length)
- 18.5 Feet (Height)

• Weight (Max Gross):

• F-15C: 68,000 lbs • F-15E: 81,000 lbs

Functions/Performance Parameters

- Mission Statement:
 - F-15A-D: Dual engine, all weather, extremely maneuverable fighter designed to gain and maintain air superiority.
 - F-15E: Retains the F-15A-D's basic air-to-air capability and is equipped to conduct all weather/night, deep penetration air-to-surface attack.

- Speed: 1,875 mph (Mach 2.5+)
- Range: 3,000 nautical miles ferry with conformal fuel tanks (F-15E only) and 3 external tanks
- Thrust: F-15C: 25,000 lbs each engine, max with afterburner F-15E: 29,000 lbs each engine, max with afterburner



F-16 Fighting Falcon

Acquisition Status

- Program Status:
 - Production of force structure/attrition reserve aircraft
 - Modification/sustainment of fielded F-16s
- Unit Assignment: Worldwide
- **Production:** Last USAF a/c delivers FY07
- Current USAF Inventory: 1431 (10 a/c on-contract, in-production)
- Projected Inventory: 1471
- Contractors:
 - Lockheed Martin (Airframe)
 - General Electric/Pratt & Whitney (engines)
 - Northrop Grumman (Radar)
- Future Upgrades: GPS/Smart Weapons Integration, Link-16 Capability, Joint Helmet Mounted Cueing System, Advanced Air-to-Air Weapons, Modular Mission Computer, Night Vision Imaging System, Air-to-Air Interrogator (Blk 50), and Advanced Targeting Pod (Blk 50)
- **Purchase Requirements:** 10 a/c FY00, 6 a/c FY03, 7 a/c FY04, 7 a/c FY05.

Capabilities/Profile

• Service Ceiling: 50,000 Feet

• Combat Range: 500 Nautical Miles

• Armament:

- Missiles (Air-to-Air): AIM-9/-120:
- Missiles/Bombs (Air-to-Ground): GBUs, CBUs, Maverick, HARM, 20mm Cannon
- Dimensions:
 - 32.8 Feet (Wing Span)
 - 49.3 Feet (Length)
 - 16.7 Feet (Height)
- Weight: 42,000 Pounds (Gross Weight)

Functions/Performance Parameters

• Mission Statement: A single engine multirole tactical fighter with full air-to-air and air-to-ground combat capabilities. Block 40 aircraft have the systems required to conduct night/under-the-weather precision attacks and Block 50 aircraft employ the HARM Targeting System in the Suppression of Enemy Air Defenses (SEAD) role.

• Performance Parameters:

• Speed: 1,500 mph (Mach 2 at altitude)

• Range: > 2,000 miles ferry range

• Thrust: 27,000 lbs



F-22 Raptor

Acquisition Status

• Program Status: 80% complete with EMD

• Unit Assignment: Edwards AFB

• Production: Last delivery in 2013

• Current Inventory: 2 test aircraft (a/c)

• **Projected Inventory:** 339 combat a/c +

9 test a/c

• Contractors:

• LMAS (Overall System Integration)

• LMTAS (Mid-Fuselage)

• Boeing (Aft Fuselage & Wings)

• Pratt & Whitney (Propulsion)

• Future Upgrades: N/A

• **Purchase Requirements:** 2 Purchased in FY99, 337 aircraft remain to be procured.

Capabilities/Profile

• Service Ceiling: 50,000 Feet

• Combat Range: Classified

• Armament:

• AIM-120C (Air-to-Air)

• AIM-9M/X (Air-to-Air)

• 1,000lb JDAM (Air-to-Ground)

• M61 (20MM) Cannon

• Dimensions:

• 44 Feet, 6 Inches (Wing Span)

• 62 Feet, 1 Inches (Length)

• 16 Feet, 6 Inches (Height)

• Weight: 50,000 Pounds (Gross Weight)

Functions/Performance Parameters

• Mission Statement: The F-22 Program is developing the next-generation air superiority fighter to counter emerging worldwide threats. The F-22 is designed to penetrate enemy airspace and achieve a first look, first kill capability against multiple targets.

- The F-22 is characterized by a low observable, highly maneuverable airframe, advanced integrated avionics, and aerodynamic performance allowing supersonic cruise without afterburner
- This combination of characteristics will make the F-22 the world's premier air superiority fighter and will also make it a formidable air-to-ground weapon system
- Internal carriage of both air-to-air and air-to-ground weapons preserves F-22 stealth characteristics
- For its primary air-to-air role, the F-22 will carry six AIM-120C and two AIM-9M/X
- For its air-to-ground role, the F-22 can internally carry two 1,000 pound-class Joint Direct Attack Munitions (JDAM), two AIM-120C, and two AIM-9M/X



F-117 Nighthawk

Capabilities/Profile

• Service Ceiling: 35,000 Feet

• Combat Range: Unlimited with air

refueling

• **Armament:** 2-2000 Pound Laser Guided Bombs (GBU-27/GBU-10) carried internally

• Dimensions:

• 43.3 Feet (Wing Span)

• 65.9 Feet (Length)

• 12.4 Feet (Height)

• Weight: 52,500 Pounds

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Holloman AFB, NM

• **Production:** Production Line closed in 1990

Current Inventory: 51Projected Inventory: 51

• Contractors:

• Lockheed Martin Skunk Works (Airframe)

• General Electric (Propulsion)

• Raytheon (Major Subsystem)

• Future Upgrades: Single Configuration Fleet, Stores Management Processor, Smart Weapons Integration, Mid-Life Improvement Programs

• Purchase Requirements: N/A

Functions/Performance Parameters

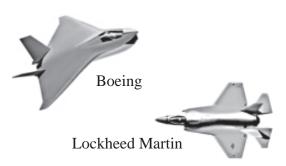
• Mission Statement: To penetrate dense threat environments and to deliver precision weapons against high value, highly defended targets with pinpoint accuracy. To utilize low observable technology (RADAR, IR, visual and acoustic) to achieve vehicle signatures that significantly degrade enemy defenses. To provide rapid response to the National Command Authority.

• Performance Parameters

• Top Speed: 562 KCAS/0.9 Mach

• Thrust: 9,040 pounds per engine

Concept Demonstrator Aircraft



Joint Strike Fighter

Capabilities/Profile USAF (JIRD-III)

Speed	Level Flight: 1.5 Mach > 30,000 ft Design Max: 750 KCAS/ 1.8 Mach
"G"	+9.0/-3.0
Payload (Internal)	2x AIM -120 (AMRAAM) 2 x 2,000 lb Class
Range	Threshold: 590 Nautical Miles Objective: 690 Nautical Miles

Acquisition Status

• **Program Status:** Competitive Concept Demonstration Program (CDP) — Pre-EMD

Unit Assignment: TBDProduction: 2005 - 2028Current Inventory: N/A

• Projected Inventory:

1763 USAF480 USN

• 609 USMC

• 60 RN

• Competing Contractors:

• Boeing and Lockheed Martin (Airframe)

• Pratt & Whitney and General Electric (Propulsion)

Functions

• Mission Statement: The JSF program will develop and deploy an affordable, next-generation, multi-role strike fighter aircraft which can meet the requirements of all three Services, the United Kingdom (UK) Royal Navy (RN), and allies.

Service Needs:

• **USAF**: Multi-role aircraft (primary air-to-ground) to replace the F-16 and A-10 and complement the F-22

• USN: Multi-role, stealthy strike fighter to complement the F/A-18E/F

• **USMC**: Multi-role, STOVL strike fighter to replace the AV-8B and F/A-18

• UK: STOVL (supersonic) aircraft to replace the Sea Harrier



MH-53J/M Pave Low IIIE

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Hurlburt Field, FL; Osan AB, JP; Kirtland AFB, NM; RAF Mildenhall, UK

• Production: Factory line closed

Current Inventory: 39Projected Inventory: 39

Contractors:

• Sikorsky (Airframe),

• General Electric (Propulsion)

• Texas Instruments (Terrain Following/ Terrain Avoidance [TF/TA] radar and Forward-Looking Infrared [FLIR])

• Future Upgrades: None

• Purchase Requirements: None

Capabilities/Profile

• Service Ceiling: 16,000 Feet

• **Range:** 630 statute miles (550 nautical miles); unlimited with air refueling

• **Armament:** Any combination of three 7.62mm miniguns and .50 caliber machine guns

• Dimensions:

- 72 Feet (Rotor Diameter)
- 92 Feet (Length)
- 25 Feet (Height)
- **Gross Weight:** 46,000 Pounds, emergency war plan allows for 50,000 Pounds

- Mission Statement: Low-level, long-range, undetected penetration into denied areas, day or night, in adverse weather, for infiltration, exfiltration, and resupply of special operations forces.
- Performance Parameters: Normal cruise is 110 knots. It can transport up to 38 special operations personnel, but will vary depending upon the fuel load. The MH-53J/M operates in hostile or denied airspace. Missions are almost always conducted under the cover of darkness, and are frequently conducted under adverse weather conditions requiring extended flight operations as low as 50' using NVG's or IMC as low as 100' AGL. Missions involve deep penetrations of hostile areas, at extreme ranges, without escort. The MH-53M employs a sophisticated avionics system to enhance crew situational awareness and to avoid threats.



HH-60G Pave Hawk

Capabilities/Profile

• Service Ceiling: 14,200 Feet

• Combat Range: 500 NM

• Armament: 7.62mm machine gun

• Dimensions:

• 53 Feet (Main Rotor)

• 64 Feet (Length)

• 16 Feet (Height)

• Maximum Gross Weight: 22,000 Pounds

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Moody AFB, GA; Nellis AFB, NV; Kirtland AFB, NM; Kadena AB, JP; Keflavik, IC; Patrick AFB, FL; Davis-Monthan AFB, AZ; Moffet, Gabreski, Kulis (ANG); Portland IAP, OR

• Production: Future production TBD

• Current Inventory: 105

• Contractors: Sikorsky (Prime Contractor)

• Future Major Upgrades: Upgraded Comm, Nav/Electronic Warfare Suite

• Purchase Requirements: none

Functions/Performance Parameters

• Mission Statement: Primary operational task is to recover downed aircrew or other isolated personnel during war. Also performs rescue operations during civil SAR, MEDEVAC, disaster relief, international aid, NEO, counter-drug, and Space Shuttle support.

• **Performance Parameters:** Mission flown at airspeeds between 120 and 150 knots. Can fly for 4 1/2 hours unrefueled. With refueling range is limited to human factors. Max gross weight for takeoff is 22,000 lbs.



KC-10 Extender

Capabilities/Profile

• Service Ceiling: 42,000 Feet

• Range: 10,000 NM (unrefueled ferry range)

(unlimited with in-flight refueling)

• Armament: None

• Dimensions:

• 165 Feet (Wing Span)

• 181 Feet (Length)

• 58 Feet (Height)

• Maximum Gross Weight: 593,000 Pounds

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: McGuire AFB, NJ; Travis AFB, CA

• Production: Completed in 1987

Current Inventory: 59Projected Inventory: 59

• Contractors:

• Douglas Aircraft Corp - now Boeing (Airframe)

• General Electric (Propulsion)

• Future Major Upgrades: TCAS/TAWS and GATM; Engine-pylon replacement

• Purchase Requirements: None

- Mission Statement: Air refueling and airlift support for deployment, employment, redeployment and joint/combined special operations.
- **Performance Parameters:** Cruise speed: Mach 0.82
 - Airlift role can accommodate loads ranging from 27 pallets to a mix of 17 pallets and 75 passengers; can transport up to 75 people and 170,000 pounds of cargo 4,400 miles.
 - Air Refueling role equipped with both advanced aerial refueling boom and hose/drogue refueling systems; maximum fuel transfer rates to receiver aircraft of 7,500 pounds per minute for the boom system and 3,000 pounds per minute for the drogue system; can transfer 156,000 pounds of fuel to a radius of 1,000 NM.



KC-135 Stratotanker

Capabilities/Profile

Service Ceiling: 50,000 FeetRange: 11,015 (ferry range)

• Armament: None

• Dimensions:

130 Feet (Wing Span)136 Feet (Length)

• 41 Feet (Height)

• Maximum Gross Weight: 322,500 Pounds

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: 9 Active Duty, 6 Reserve

and 19 Guard bases

• **Production:** Completed in 1965

• Current Inventory (all types): 547

• Projected Inventory: 547

• Contractors:

• Boeing (Airframe)

• General Electric (Engines)

• Pratt & Whitney (Engines)

• Future Major Upgrades: Pacer CRAG, Global Air Traffic Management (GATM), Multipoint Refueling, Nav/Safety

• Purchase Requirements: None

Functions/Performance Parameters

• Mission Statement: Principal mission is air refueling. Greatly enhances the U. S. Air Force's capability to accomplish its mission of Global Engagement. Also provides aerial refueling support to U.S. Navy, U.S. Marine Corps and allied aircraft.

• Performance Parameters: Four turbofans, mounted under 35-degree swept wings, power the KC-135 to takeoffs at gross weights up to 322,500 pounds (146,285 kilograms). Nearly all internal fuel can be pumped through the tanker's flying boom, the KC-135's primary fuel transfer method. A special shuttle cockshaped drogue, attached to and trailed behind the flying boom, may be used to refuel aircraft fitted with probes. Can transfer over 99,000 pounds of fuel to a radius of 1,000NM. An operator stationed in the rear of the plane controls the boom.



RC-135S Cobra Ball

• Armament: None • Dimensions:

• 131 Feet (Wing Span)

• 140 Feet (Length)

Capabilities/Profile

• Service Ceiling: 35,000 Feet

• Combat Range: 8-10 hours unrefueled

• 42 Feet (Height)

• **Weight:** 299,000 Pounds (Max)

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Offutt AFB, NE

• Production: Complete

Current Inventory: 3 + 1 Trainer
Projected Inventory: 3 + 1 Trainer

• Contractors:

• Boeing (Airframe)

• Pratt & Whitney (Propulsion)

• Raytheon, Textron (Major Subsystems)

• Future Upgrades: Re-Engine Fleet, Avionics, Primary Mission Equipment, on-going modernization

• Purchase Requirements: None

Functions/Performance Parameters

• Mission Statement: COBRA BALL (RC-135S) is a self-contained MASINT collection platform, providing Scientific and Technical (S&T) assessments of foreign ballistic missiles and assisting in treaty verification.

• Performance Parameters:

• Speed: 500mph



RC-135U Combat Sent

Capabilities/Profile

• Service Ceiling: 35,000 Feet

• Combat Range: 8-10 hours unrefueled

• Armament: None

• Dimensions:

• 135 Feet (Wing Span)

• 136 Feet (Length)

• 42 Feet (Height)

• **Weight:** 299,000 Pounds (Max)

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Offutt AFB, NE

Production: Complete Current Inventory: 2 Projected Inventory: 2

• Contractors:

• Boeing (Airframe)

• Pratt & Whitney (Propulsion)

• Raytheon, Harris Information Systems (Major Subsystems)

• **Future Upgrades:** Re-Engine Fleet, Avionics, Primary Mission Equipment (PME), on-going modernization

• Purchase Requirements: None

Functions/Performance Parameters

• Mission Statement: COMBAT SENT (RC-135U) is a Scientific & Technical SIGINT collector for information used in the development of advanced weapon systems and dynamic reprogramming of radar warning gear.

• Performance Parameters:

• Speed: 500mph



RC-135V/W Rivet Joint

DC_135\/\\\

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Offutt AFB, NE

• Production: Complete

Current Inventory: 16 + Trainer
 Projected Inventory: 16 + Trainer

• Contractors:

• Boeing (Airframe)

• Pratt & Whitney (Propulsion)

• Raytheon (Major Subsystems)

• Future Upgrades: Re-Engine Fleet, Joint SIGINT Avionics Family (JSAF), Avionics, Primary Mission Equipment, on-going modernization

• Purchase Requirements: None

Capabilities/Profile

• Service Ceiling: 35,000 Feet

• Combat Range: 8-10 hours unrefueled

• Armament: None

• Dimensions:

• 131 Feet (Wing Span)

• 136 Feet (Length)

• 38 Feet (Height)

• **Weight:** 299,000 Pounds (Max)

Functions/Performance Parameters

• Mission Statement: RIVET JOINT (RC-135V/W) is a self-contained collection, processing, analysis and dissemination system. Provides direct tactical SIGINT support to theater/component commanders.

• Performance Parameters:

• Speed: 500-mph



WC-135

Capabilities/Profile

Service Ceiling: 42,000 FeetCombat Range: Worldwide

• Armament: N/A

• Dimensions:

• 131 Feet (Wing Span)

• 140 Feet (Length)

• 42 Feet (Height)

• Weight: 299,000 Pounds (Gross Weight)

Acquisition Status

• **Program Status:** The only WC-135 is currently in Program Depot Maintenance (PDM) (until Nov 99) and will remain in service until FY04. A modified EC-135 (WC-135W) is providing interim airborne collection capability

• Unit Assignment: 55WG Offutt AFB, NE

Production: Complete Current Inventory: 1 Projected Inventory: 1

• Contractors:

• Boeing (Airframe)

• Pratt-Whitney (Propulsion)

• Purchase Requirements: N/A

Functions/Performance Parameters

• Mission Statement: Worldwide airborne air sampler. Provides worldwide treaty monitoring and assessment capability of nuclear accidents and tests.

• Performance Parameters:

• Speed: 450 knots

• Endurance: 8-10 hours unrefueled, 16-18 hours refueled



RQ-1A Predator

Capabilities/Profile

• Service Ceiling: 25,000 Feet

• Combat Range: 400 Nautical Miles

• Armament: None

• Dimensions:

• 49 Feet (Wing Span)

• 27 Feet (Length)

• 7 Feet (Height)

• Weight: 2,300 Pounds (Gross Weight)

Acquisition Status

• Program Status: Production/Operational

• Unit Assignment: Indian Springs AFAF, NV

• Production: Continues through FYDP

• Current Inventory: 5 partial Systems (a system includes four air vehicles, one Ground Control Station and one Trojan Spirit II Comm system)

• Projected Inventory: 12 Systems

• Contractors:

• General Atomics ASI (Prime)

• Northrop Grumman (SAR)

• ElectroSpace Sys (Trojan Spirit II)

• Future Upgrades: UAV Common Automatic Recovery System (UCARS), improved Ku SATCOM, Air Force Mission Support System (AFMSS).

• **Purchase Requirements:** 1 System and 11 attrition air vehicles in FY00

Functions/Performance Parameters

• Mission Statement: Endurance Unmanned Aerial Vehicle providing airborne reconnaissance. Sensors include Electro-Optic/ Infrared (EO/IR) and Synthetic Aperture Radar (SAR). Provides real-time full motion video through either line-of-sight or satellite.

• Performance Parameters:

• Speed: 120 knots

Typical operating altitude: 15,000 Feet
Maximum operating altitude: 25,000 Feet

• Endurance: Nominally 30 hours



RQ-4A Global Hawk

Capabilities/Profile

• Service Ceiling: 65,000 Feet

Combat Range: 13,500 Nautical Miles
Payload: 2,000 lb. (SAR & EO/IR Sensors)

• Armament: None

• Dimensions:

• 116 Feet (Wing Span)

• 44 Feet (Length)

• 15 Feet, 2 inches (Height)

• Weight: 25,600 Pounds (Gross Weight)

Acquisition Status

• **Program Status:** In Advanced Concept Technology Demonstration (ACTD)

• Unit Assignment: In flight test at Edwards Air Force Base, CA

• Production: TBD

• Current Inventory: ACTD Funds 5 Air Vehicles

• Projected Inventory: TBD

• Contractors:

• Teledyne Ryan Aeronautical (Prime)

• Future Upgrades: TBD

• Purchase Requirements: No post-ACTD acquisition decision has been made

Functions/Performance Parameters

• Mission Statement: Global Hawk will provide continuous, all-weather, day/night, wide area surveillance communications and interfaces to theater systems to support the tactical warfighter. It is designed for long endurance, high altitude, standoff, image collection capabilities. Global Hawk will operate in low-to-moderate air defense threat environments with the ability to fly above, standoff, and look into high threat areas. Sensors include Electro-Optic/Infrared (EO/IR) and Synthetic Aperature Radar (SAR).

• Performance Parameters:

• Speed: 350 knots

• Typical operating altitude: 65,000 Feet

• Endurance: Up to 40 hours



T-1A Jayhawk

Capabilities/Profile

• Service Ceiling: 41,000 Feet

• Range: Over 2,100 Nautical Miles

• Armament: None

• Dimensions:

• 43 Feet, 6 Inches (Wing Span)

• 48 Feet, 5 Inches (Length)

• 13 Feet, 11 Inches (Height)

• Max Takeoff Weight: 16,100 Pounds

(Gross Weight)

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Randolph, Vance,

Laughlin and Columbus AFBs

Production: 1989–1995Current Inventory: 180

• Projected Inventory: 180

• Contractors:

• Raytheon (Airframe)

• Pratt & Whitney (Engines)

• Collins (Avionics)

• Quintron (Simulators)

• McDonnell Douglas (Integration)

• Future Upgrades: GPS

• Purchase Requirements: Complete GPS

Mod in FY99

Functions/Performance Parameters

• Mission Statement: Used by Air Education and Training Command as an advanced aircraft to train student pilots who will fly airlift, bomber, or tanker aircraft.

• Performance Parameters:

• Medium range, twin-engine jet

• Top Speed: 538 mph (Mach .73)

• Thrust: 2,900 pounds each engine



T-6A Texan II

Capabilities/Profile

• Maximum Operating Altitude: 31,000 Feet

• Range: 800+ NM • Armament: N/A

• Dimensions:

• 33.4 Feet (Wing Span)

• 33.3 Feet (Length)

• 10.6 Feet (Height)

• Weight: 6,500 Pounds (Gross Weight)

Acquisition Status

- **Program Status:** Manufacturing Development and Low Rate Initial Production
- Unit Assignment: USAF: Randolph AFB, TX; Moody AFB, GA; Laughlin AFB, TX; Vance AFB, OK; Columbus AFB, MS; Sheppard AFB, TX; USN: NAS Whiting, FL; NAS Corpus Christi, TX; NAS Pensacola, FL
- **Production:** Through FY06 (USAF) and FY14 (USN)
- Current Inventory: 1
- **Projected Inventory:** 740 (USAF and USN)
- Contractors:
 - Raytheon (Prime/Airframe)
 - Pratt & Whitney (Propulsion)
 - Martin Baker (Ejection)
 - Allied Signal (Avionics)
 - Flight Safety (GBTS)
- Future Upgrades: None currently planned
- Purchase Requirements: For FY00, acquire 29 USAF and 12 USN aircraft; continue Ground Based Training Systm (GBTS) acquisition

Functions/Performance Parameters

• Mission Statement: Provides entry level flight and ground based training for future USAF and USN pilots. Replaces USAF T-37B and USN T-34C primary trainer aircraft and associated Ground Based Training Systems (GBTS)

- Improved Anthropometric Accommodation: minimum of 80% of eligible female pilot candidates
- Ejection seat: 0 feet/0 knots
- Birdstrike resistant: 4 pound bird impact at 270 knots with no catastrophic damage
- Takeoff and Landings: 5000 ft runway, hot day



T-37B/C Tweet

Capabilities/Profile

• Service Ceiling: 35,000 Feet

• Range: 400 Nautical Miles (460 Miles)

• **Armament:** T-37B, none; T-37C has provisions for two, 250-pound bombs and a 16mm gun camera

• Dimensions:

• 33 Feet, 8 Inches (Wing Span)

• 29 Feet, 3 Inches (Length)

• 9 Feet, 2 Inches (Height)

• Max Takeoff Weight: 6,625 Pounds (Gross Weight)

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Randolph, Sheppard, Vance, Columbus and Laughlin AFBs

Production: 1956–1968Current Inventory: 453

• **Projected Inventory:** To be phased out by the T-6A, beginning FY00

• Contractors:

• Cessna (Airframe)

• Continental (Engines)

• Sabreliner Corp (Structural Life Extension Program)

• Future Upgrades: None

• Purchase Requirements: None

Functions/Performance Parameters

• Mission Statement: Primary trainer in undergraduate pilot training, undergraduate navigator and tactical navigator training.

• Performance Parameters:

• Twin-engine jet

• Top Speed: 315 mph (Mach 0.4 at sea level)

• Thrust: 1,025 pounds each engine



A/T-38A/B Talon

Capabilities/Profile

• Service Ceiling: Above 55,000 Feet

• Range: 870 Nautical Miles (1,000 Miles)

• **Armament:** AT-38B has provisions for external armament

• Dimensions:

• 25 Feet, 3 Inches (Wing Span)

• 46 Feet, 4.5 Inches (Length)

• 12 Feet, 10.5 Inches (Height)

• Max Takeoff Weight: 12,500 Pounds (Gross Weight)

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Randolph, Sheppard, Vance, Columbus, and Laughlin AFBs

Production: 1961–1972Current Inventory: 509Projected Inventory: 509

• Contractors:

• Northrop (Airframe)

• General Electric (Engines)

• Future Upgrades:

• Pacer Classic, the structural life extension program, is integrating 10 modifications, including major structural renewal, into one process.

• Avionics Upgrade Program (C Model)

Propulsion Modernization Program (PMP)

• Purchase Requirements: Begin acquisition/installation of Avionics Upgrade kits in FY99.

Functions/Performance Parameters

• Mission Statement: Used primarily by Air Education and Training Command as an advanced aircraft for undergraduate pilot training and pilot instructor training. Air Combat Command, Air Mobility Command, and the National Aeronautics and Space Administration also use the T-38 in various roles.

- Twin-engine, high-altitude, supersonic jet
- Top Speed: 812 mph (Mach 1.08 at sea level)
- Thrust: 2,900 pounds with afterburners



T-43A

Capabilities/Profile

• Service Ceiling: 37,000 Feet

• Range: 2,604 NM • Armament: None

• Dimensions:

93 Feet (Wing Span)100 Feet (Length)37 Feet (Height)

• Max Takeoff Weight: 115,000 Pounds

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Randolph AFB, TX

Production: 1971–1973Current Inventory: 10Projected Inventory: 10

• Contractors:

• Boeing (Airframe)

• Pratt & Whitney (Engines)

• Future Upgrades: Flight Data Recorder (FDR)/Cockpit Voice Recorder (CVR), Global Positioning System (GPS), Traffic Collision Avoidance System (TCAS), Terrain Avoidance Warning Systems (TAWS)

• Purchase Requirements: None

Functions/Performance Parameters

• Mission Statement: Used by Air Education and Training Command to train navigators for strategic and tactical aircraft.

• Performance Parameters:

• Medium range, swing-wing jet aircraft

• Military training version of the Boeing 737-200

• Speed: 535 mph (Mach .72)

• Thrust: 14,500 lbs per engine



U-2

Capabilities/Profile

Service Ceiling: >70,000 FeetCombat Range: >7,000 NM

• Armament: None

• Dimensions:

• 104 Feet (Wing Span)

63 Feet (Length)16 Feet (Height)

• Weight: 40,000 Pounds (Gross Weight)

Acquisition Status

• Program Status: Sustainment

• Unit Assignment: Beale AFB, CA

• Production: Complete

• **Current Inventory:** 35 (4-two seat trainers, 31 single seat)

• Projected Inventory: 35

Contractors:

• Lockheed Martin (Airframe)

• GE (Propulsion)

• Raytheon, Litton, Sanders (Major Subsystems)

• Future Upgrades: Cockpit Modernization, ASARS Improvement Program, Senior Year Electro-Optical Reconnaissance System Pre-Planned Production Improvement (SYERS P3I) to Multi-Spectral, Advanced Defensive System

• Purchase Requirements: N/A

Functions/Performance Parameters

• Mission Statement: Conducts high-altitude reconnaissance and surveillance utilizing state of the art IMINT and ELINT sensors. Provides Near Real Time (NRT) worldwide battlespace awareness.

• Performance Parameters:

• Speed: 475 mph

• Sortie Duration: >10 Hours



AIM-7M Sparrow

Acquisition Status

• **Program Status:** Sustainment (Inventory)

• OPR: NAVAIRSYCOM PMA-259

AF Mgmt/Eng OPR: WR-ALC/LKG

• Current Inventory: Classified

• Contractors:

Raytheon

• General Dynamics

Capabilities/Profile

• Guidance: Semi-Active Radar

Diameter: 8 InchesLength: 12 FeetWeight: 500 Pounds

• Warheads:

Blast/Frag: WAU-17Continuous Rod: WAU-10

• Fuze: Proximity RF

• Propulsion: MK-58 Rocket Motor (4.5 sec

Boost; 11 sec Sustain)
• Launcher: LAU-106A

Speed: More than 2,660 mphRange: More than 30 NM

Functions/Performance Parameters

• **Mission Statement:** The AIM–7M Sparrow is a supersonic, medium range, semi-active radar-guided air-to-air missile with a high explosive warhead.

- Joint Project between Navy and Air Force
- All Altitude Capability
- All Weather Capability
- All Aspect Capability
- Carriage Options: F–14, F–15, F–16 ADF, F–18
- Radar Guidance Required Throughout Time of Flight (TOF)
- AIM-7M H-Build: Home-On-Jam Capable
- 22 Fixed-wing and 3 Helicopters downed by AIM–7 Sparrow missiles during Gulf War



AIM-9M Sidewinder

Capabilities/Profile

• Guidance: Passive Infrared Homing

Diameter: 5 InchesLength: 113 InchesWeight: 191 Pounds

Warheads: Annular Blast/Frag
Fuze: Contact and Active Optical
Propulsion: MK-36 Rocket Motor

• **Speed:** Supersonic • **Range:** 8.7+ NM

Acquisition Status

• **Program Status:** Sustainment (Inventory)

• OPR: NAVAIRSYCOM PMA-259

• AF Mgmt/Eng OPR: WR-ALC/LKG

• Current Inventory: Classified

• Contractors:

Raytheon

• Loral Martin

• Introduction Date: 1956

Functions/Performance Parameters

• Mission Statement: The AIM-9M Sidewinder is a supersonic, short range, passive infrared-guided air-to-air missile with a high explosive warhead.

- Joint Project between Navy and Air Force
- All Altitude Capability
- All Aspect Capability
- Launch and Leave Capability
- Carriage Options: A-10, F-14, F-15, F-16, F-16 ADF, F-18



AIM-9X

Acquisition Status

- **Program Status:** Joint Navy/AF Program in Engineering and Manufacturing Development Flight Test
 - Completed Five Separation Firings and Two Guided Firings Resulting in Direct Hits
 - Completed Environmental Testing on F-15C and F/A-18C/D
- **Production:** Manufacturing Processes in Place. LRIP 1 Scheduled for FY01
- Contractor: Raytheon Systems Company
- Future Upgrades: P3I Starting in FY03
- **Planned AF Buy:** 5,080 Combination of Full Up Rounds and Captive Air Training Missiles

Capabilities/Profile



Not to Scale

Length: 119 InchesDiameter: 5 InchesWeight: 188 Pounds

Functions/Performance Parameters

• Mission Statement: Regain the lead in the infrared (IR) Short Range Missile arena.

Key Performance Parameters:

- Improved IR Countermeasure Performance
- Improved Pk
- Highly Maneuverable Airframe
- High Off-boresight Acquisition and Track

Platform Compatibility:

- Lead Test Platforms: F-15C and F/A-18C/D
- Follow-on Platforms: F-16, F-22, and F/A-18E/F
- Integration with Joint Helmet Mounted Cueing System



AIM-120 AMRAAM

Acquisition Status

• **Program Status:** Production with Pre-Planned Product Improvement (P3I) Program

• **Production:** July 2009

• Current bought to date: 6729

• Projected buy: 8498

• Contractor: Raytheon Systems Company

• Future Upgrades: P3I and Processor

Modernization Program

• Purchase Requirements: 1769 missiles

left to procure until complete

Capabilities/Profile

Guidance: Inertial/Command, Inertial &

Active Radar

Diameter: 7.15 inches **Length:** 144 inches

Weight: 348 pounds (C model) Warhead: Blast/Fragmentation Fuze: Target Detection Device

Propulsion: Boost/Sustain, Reduced Smoke

Launcher: LAU-127/128/129/142

Speed: Supersonic

Range: 20+ nautical miles

Functions/Performance Parameters

• Mission Statement: The AIM-120 advanced medium-range air-to-air missile (AMRAAM) is a supersonic, medium range, active radar guided air-to-air missile with a high explosive warhead.

- Joint Project between Air Force and Navy
- All Altitude Capability
- All Weather Capability
- All Aspect Capability
- Carriage Options: F-15, F-16, F-18, F-22
- P3I Program
 - Enhanced Electronic Protection (EP) capabilities
 - Improved warhead, fuzing, and guidance
 - Increased kinematics via new 5-in stretched rocket motor



CBU-87 Combined Effects Munition (CEM)

Acquisition Status

• Program Status: Sustainment/Upgrade

• Production: FY99

- Current Inventory:
 - CBU-87 122,416 units
 - CBU-103 35 units
- Projected Inventory:
 - CBU-87 121,683
 - CBU-103 Classified
- Contractors:
 - Aero General
 - Honeywell, Inc
 - · Alliant Tech
- Future Upgrades: Upgrade to the CBU-103 Configuration with Wind Corrected Munitions Dispenser (WCMD) Tail Kits.
- Purchase Requirements: Tail Kit purchases based on available funding.

Capabilities/Profile

• Range: Direct Attack Munition

• Warhead: 202 BLU-97 Shaped Charge Anti-Personnel/Anti-Material Frag/

Incendiary Bomblets

• Dimensions: 92 in x 15.6 in diameter

• Weight: 949 Pounds

Functions/Performance Parameters

• Mission Statement: The weapon dispenses the bomblets over the target in a rectangular pattern with density and sizes of the area covered depending on release parameters and spin rates.

- Adverse Weather Capability
- USAF and Navy Fighter and Bomber Compatibility
- Aircraft Carrier Operability



CBU-89 GATOR

Capabilities/Profile

• Range: Direct Attack Munition

• Warhead:

• 72 BLU-91 Anti-Tank Mines

• 22 BLU-92 Anti-Personnel Mines

• Dimensions: 92 in x 15.6 in diameter

• Weight: 705 Pounds.

Acquisition Status

• Program Status: Sustainment/Upgrade

• **Production:** FY99

• Current Inventory:

CBU–89 -9,236 units
CBU–104 -15 units

• Projected Inventory:

• CBU-89 - 9,165 units

• CBU-104 - Classified

• Contractors:

Honeywell

Aerojet

• Olan

• Alliant

• Future Upgrades: Upgrade to the CBU–104 Configuration with Wind Corrected Munitions Dispenser (WCMD) Tail Kits.

• Purchase Requirements: Tail Kit purchases based on available funding.

Functions/Performance Parameters

• Mission Statement: CBU-89 disperses 94 mines. 72 mines are anti-tank and 22 are anti-personnel. The weapon dispenses the mines over the target in a rectangular pattern. The anti-tank mines can be fused for up to a 72 hour delay.

- Adverse Weather Capability
- USAF and Navy Fighter and Bomber Compatibility
- Aircraft Carrier Operability



CBU-97 Sensor Fused Weapon (SFW)

Acquisition Status

• Program Status: Full Rate Production

Production: Ends FY07
Current Inventory: 1750
Projected Inventory: 5,000

• Contractors: Textron Systems Corporation

• Future Upgrades: Pre-planned product improvement (P3I) upgrade to BLU–108 submunition

• **Purchase Requirements:** After FY99 buy, 2477 weapons left to procure until complete

Capabilities/Profile

• Range: N/A - Direct Attack Munition

• Dimensions:

• 7.7 Feet (Length)

• 1.3 Feet (Width)

• 1.3 Feet (Height)

• Weight: 920 Pounds

Functions/Performance Parameters

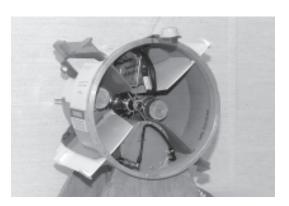
• Mission Statement: Provides operational forces with the capability to achieve multiple kills per pass against moving and stationary land combat vehicles. Tanks, APCs, and propelled targets are primary targets. It provides direct attack capability and interdiction against command and control centers.

• Performance Parameters:

Threshold/ Baseline Actual Variance

	Daseille	Actual	variance
Kills	Multiple/ Pass	Exceeding	g +70%
Targets	Armor/Suppo Vehicles	rt 🗸	0
Del Altitude	200–3000* f	t 🗸	0
Aircraft	F-16, F-15E A-10, B-1, B-2, B-52	, /	0
Schedule (RAA)	MET	MET	0

^{*}Requirement calls for 200-3000 ft. With WCMD can be employed at altitudes up to 40,000 ft



Wind Corrected Munitions Dispenser (WCMD)

Capabilities/Profile

• Range: N/A - Tailkit for Direct Attack Munitions

• Dimensions:

- 1.42 Feet (Length)
- 1.75 Feet (Width)
- 1.75 Feet (Height)
- Weight: 100 Pounds

Acquisition Status

- Program Status:
 - LRIP II Award Jul 99
 - MS III Decision 4Q/FY01
- **Production:** Ends FY 2005
- Current Inventory: 38
- Projected Inventory: 40,000
- Contractor: Lockheed Martin
- Future Upgrades: N/A
- **Purchase Requirements:** After FY99 buy, 39,044 weapons left to procure until complete

Functions/Performance Parameters

• Mission Statement: Provides accurate dispenser weapon capability when delivered from medium to high altitudes. WCMD develops a kit for use on inventory cluster weapons (CEM, Gator, SFW). Combined Effects Munition (CEM) is an anti-armor/anti-personnel weapon. Gator delivers antitank and anti-personnel mines. Sensor Fused Weapon (SFW) is an anti-armor weapon.

- Adverse weather performance
- Autonomy (release and leave)
- Retargeting capability (prior to release)
- No degradation of Tactical Munitions Dispensor envelope
- Core/Alternate aircraft interface
- Compatible with CBU-87, CBU-89, & CBU-97

	Threshold	Actual (est)	Variance
Accuracy	100 ft	37 ft	+63 ft



Lockheed Martin AGM-158

Joint Air-to-Surface Standoff Missile (JASSM)

Capabilities/Profile

• Range: Much greater than 100NM

• Dimensions:

• 14 Feet (Length)

• 78 Inches (Circumference)

• Weight: 2250 Pounds

Acquisition Status

• Program Status:

MS I/Begin PDRR: June 96
 MS II/Begin EMD: Nov 98
 LRIP: Oct 01
 B-52 RAA: Jul 02
 MS III: Feb 03

• **Production:** Last delivery in FY11

Current Inventory: 0Projected Inventory: 2400

• Contractors:

• Lockheed Martin (Prime)

 Hughes, Teledyne Ryan, Raytheon, Honeywell, Fiber Innovations, Lockheed Martin Skunkworks (Sub-Contractors)

• Future Upgrades: None at this time -

system beginning EMD

• Purchase Requirements: 2400

Functions/Performance Parameters

• Mission Statement: Affordable, autonomous, long range, conventional, survivable, air-to-ground, precision-guided, standoff cruise missile; compatible with Air Force and Navy fighter and bomber aircraft; able to strike a variety of high value, heavily defended, fixed or relocatable targets

	Threshold/	
	Baseline	Actual
Range		
Low	Classified	Classified
High	Classified	Classified
Missile Mission Effectiveness	≤55 missiles	Classified
Carrier Operable	yes	yes
Affordability (\$FY95) (Ave Unit Proc Price)	\$700K	\$314K
Autonomous	yes	yes
Adverse weather capability	yes	yes
Warhead	Unitary	yes (1000 lb class)



GBU-31/32 Joint Direct Attack Munition (JDAM)

Acquisition Status

• Program Status: EMD, continuing LRIP

• Production: FY08

Current Inventory: 1480 LRIP I units
 B-1B, B-2, B-52H, F/A-18C/D

Early Operational Capability

- **Projected Inventory:** 87,496 total (62,000 AF; 25,496 USN)
- Contractors:
 - Boeing (JDAM)
 - Textron (Tail Assembly System)
 - Honeywell (Inertial Measurement Unit)
- **Future Upgrades:** Navy conducting a Product Improvement Program to provide JDAM a 3-meter precision capability
- Purchase Requirements: 80,047 JDAMs to procure until complete

Capabilities/Profile

• Range: <15 Nautical Miles

• Warheads: Blast/Frag: Mk-83/Mk-84

Penetrator: BLU-109

• Dimensions:

Mk-83: 10 Feet (length)Mk-84: 12.7 Feet (length)BLU-109: 12.4 Feet (length)

• Weight (USAF/USN):

• Mk-83: 1013/1028 Pounds

• Mk-84: 2036/2056 Pounds

• BLU-109: 2115/2135 Pounds

Functions/Performance Parameters

• Mission Statement: JDAM will upgrade the existing inventory of general purpose bombs by integrating them with a GPS/INS guidance kit to provide the warfighter with accurate weapon delivery in adverse weather from medium/high altitudes.

- Accurate (13 meter Circular Error Probability (CEP) with GPS-aided INS)
- Adverse Weather Capability
- Warhead Compatibility (MK-84, BLU-109, MK-83)
- USAF and Navy Fighter and Bomber Compatibility
- In-Flight Captive Carriage Retargeting
- Aircraft Carrier Operability



145 BLU-97 Combined Effects Bomblets



6 BLU-108 Submunitions

Joint Standoff Weapon (JSOW)

Acquisition Status

- Program Status:
 - AGM-154A MSIII Oct 98
 - AGM-154B LRIP Oct 98
- **Production:** FY2013 (date factory line due to close)
- Current Inventory: 0
- Projected Inventory: 6,114
- Contractor: Raytheon Systems Company
- Future Upgrades: P3I upgrade to BLU–108 submunition (under SFW development)
- **Purchase Requirements:** After FY99 buy, 5983 missiles left to procure until complete

Capabilities/Profile

• Range: 15-40 Nautical Miles

• Dimensions:

• 13.3 Feet (Length)

• 1.1 Feet (Width)

• 1.4 Feet (Height)

• Weight: 1,065 Pounds

Functions/Performance Parameters

• Mission Statement: Long range, INS/GPS guided, standoff, air-to-ground weapon designed to attack a variety of soft and armored area targets (fixed, relocatable, and mobile) during day/night/adverse weather conditions. JSOW enhances aircraft survivablity as compared to current interdiction weapon systems by providing the capability for launch aircraft to standoff outside the range of enemy point defenses.

• Performance Parameters:

inresnoia/			
	Baseline	Actual	Variance
Launch Speed	0.6-0.95M	0.6-0.95M	0%
Off-Axis Launch	<u>+</u> 30°	$\pm 178^{\rm o}$	+493%
Range High Alt	X	1.5X	+50%
Survivability	X	X	0%
CEP	X	.83X	+17%
BLU–108 kills/wpn	X	3.5X	+250%

Throobold/



AGM-65 Maverick

Capabilities/Profile

- Range: <8 NM
- Warheads:
 - 300lb Blast/Frag AGM-65G/K
 - 125lb Shaped AGM-65A/B/D/H
- Dimensions:
 - 97 Inches (Length)
 - 12 Inches (Diameter)
- Weight:
 - 500lb (AGM-65A/B/D/H)
 - 650lb (AGM-65G/K)

Acquisition Status

- Program Status: Inventory
- Current Inventory:
 - est 7300 combat capable AGM-65A/Bs
 - A's in deep storage (no maintenance)
 - B's reaching shelf life
 - 8200 AGM-65Ds
 - 6900 AGM-65Gs
- Contractor: Raytheon
- Future Upgrades:
 - 1200 AGM-65Gs (IR seeker) will be converted to AGM-65Ks (improved EO seeker)
 - 250 AGM-65Bs (EO seeker) will be converted to AGM-65Hs (improved EO seeker)

- Air to surface launch and leave missile
- Electro-optical (EO) or infrared (IR) guidance
- Platforms: A-10, F-16, F-15E
- Primary targets: Armor, vehicles, bunkers, air defense



GBU-15 Guided Standoff Weapon

Capabilities/Profile

• **Range:** <15 NM

• Warhead:

• Blast/Frag: Mk-84 • Penetrator: BLU-109

• Dimensions:

• 154 Inches (Length) • 18 Inches (Diameter)

• Weight: 2400 Pounds

Acquisition Status

• **Program Status:** Sustainment (inventory)

• Production: Complete • Current Inventory: 1900 • Projected Inventory: 1900

• Contractor: Boeing

• Future Upgrades: EGBU-15 will add a GPS/INS capability to the current seeker to provide adverse weather capability. Current plans call for the conversion of 1500

GBU-15s to EGBU-15s.

• Purchase Requirements: None

Functions/Performance Parameters

• Mission Statement: Weapon uses TV or IR Terminal Seeker. After launch, weapon performs a programmed climb and operator acquires the target. Data link allows one aircraft to launch weapon and another to perform target acquisition. Integrated on the F-15E Strike Eagle.

• Performance Parameters:

• Precise (<3 meter CEP)

• USAF platform: F-15E



AGM-84D Harpoon

Capabilities/Profile

• **Range:** >60 NM

• Warheads: Blast/Frag: 500 lb. Class

• **Dimensions:** 13 Ft Long x 13.5 In. Diameter

Weight: 1,172 PoundsWing Span: 3 FeetSpeed: Subsonic

• Guidance System: Active radar guided cruise missile monitored by radar altimeter,

active radar terminal homing.

• Propulsion: Turbojet

Acquisition Status

• Program Status: Sustainment

• Production: N/A

Current Inventory: 68Projected Inventory: 68

• Contractor: McDonnell Douglas

• Future Upgrades: N/A

• Purchase Requirements: N/A

Functions/Performance Parameters

• **Mission Statement:** HARPOON is a 1,172 lb, sea-skimming anti-ship missile capable of being fired from multiple B–52/H aircraft, ships, and submarines. Used for sea lane interdiction.

- Accurate
- Adverse All-Weather Capability
- USAF and Navy Fighter/Bomber Compatibility



AGM-86B Air Launched Cruise Missile

Capabilities/Profile

Range: 1,500+ MilesArmament: W80-1 WH

• Dimensions:

12.75 Feet (Length)12.0 Feet (Wingspan)

• Weight: 3,150 Pounds

Acquisition Status

• Program Status: Sustainment

• Current Inventory: 1304

• Future Upgrades:

- System currently in a 4 phase SLEP to extend missile service life to FY30
- Phase I determine probability of obsolescence, build parts database, Inertial Navigation Equipment (INE) study
- Phase II determine age sensitivities, develop mitigation options & cost estimates
 - Conventional/Air Launch Cruise Missile Test Instrumentation Kit (CATIK) flight test payload door procurement to start in FY01, INE procurement to start in FY03
- Phase III system life cycle cost analysis
- Phase IV documentation changes, procurement, retrofits and maintenance/inspections

Functions/Performance Parameters

• Mission Statement: Subsonic, highly accurate, long range, air-to-surface strategic nuclear missile. The ALCM is designed to evade air and ground-based defenses in order to strike targets at any location within any enemy's territory.

• Performance Parameters:

• Speed: 550 MPH



AGM-86C Conventional Air Launched Cruise Missile (CALCM)

Acquisition Status

• Program Status: Sustainment/Upgrade

 Production: Modification of 322 ALCMs to CALCMs with deliveries beginning in Dec 99

Current Inventory: 69Projected Inventory: 388

• Contractors:

• Boeing (Prime)

• Interstate Electronics Corp (GRIU/P)

• Harris Corp (Anti-Jam System)

• Future Upgrades:

• Global Positioning System (GPS) Receiver Interface Unit-Precision (GRIU-P)/Anti-Jam Upgrade. Allows for Precision Level accuracy insured by state-of-the-art GPS Anti-Jam protection system. Deliveries begin in Jul 00.

• Purchase Requirements:

 An additional 322 ALCMs will be converted to CALCMs to replenish the stockpile. An upgrade from the Block I to the Block IA configuration is part of this modification effort. Remainder of stockpile will be upgraded by FY02.

• Monitor the fleet for an anticipated Service Life Extension Program (SLEP).

Capabilities/Profile

• Range: >500 NM

• Warheads: Blast/Frag

• Block 0 - 2,000 lb. Class

• Block I - 3,000 lb. Class

• Block IA - 3,000 lb. Class

• Dimensions:

• 21 Feet (Length)

• 2 Feet (Width)

• 4 Feet (Height)

• Wing Span: (Deployed) 12 Feet

• Weight: (At Launch)

• Block 0 - 3,117 Pounds

• Block I/IA - 3,277 Pounds

Functions/Performance Parameters

• Mission Statement: CALCM provides the warfighter with an adverse weather, day/night, air-to-surface, accurate, stand-off (outside theater defense) strike capability. CALCM is equally effective for stand-alone, clandestine/punitive strikes, and fully integrated theater warfare.

- Precision Accuracy Block IA
- Multi-Axis of Attack Capability
- Adverse Weather Capability
- USAF B-52H Bomber Compatibility
- Limited In-Flight Captive Carriage Retargeting Capability



AGM-86D CALCM Penetrator Missile

Capabilities/Profile

• **Range:** >500 NM

• Warheads: Penetrating 1,000 lb. Class

• Dimensions:

• 21 Feet (Length)

• 2 Feet (Width)

• 4 Feet (Height)

• Wing Span: (Deployed) 12 Feet

• Weight: (At Launch) - 3,250 Pounds

Acquisition Status

• Program Status: Production

Production: FY01Current Inventory: 0

• Projected Inventory: 50 units

Contractors:Boeing (Prime)

• Future Upgrades: None planned.

• Purchase Requirements:

 BlockIA CALCMs will be modified to include a penetrating warhead with deliveries scheduled to begin in Feb 01

Functions/Performance Parameters

• Mission Statement: CALCM Penetrator is a long-range, air-delivered, stand-off missile mating the battle proven CALCM airframe with a penetrator warhead. Once fielded, CALCM Penetrator will provide the warfighter with a cost-effective, stand-off Outside Theater Defenses capability against a wide range of hardened, deeply buried targets.

- Precision Accuracy <3 Meter (Target Location Error (TLE) Dependent)
- Autonomous navigation/terminal guidance
- Capable of 2 to 3 times BLU–109 penetration capability
- Multi-Axis of Attack Capability
- Adverse Weather Capability
- USAF B-52H Bomber Compatibility
- Limited In-Flight Captive Carriage Retargeting Capability



AGM-88 High Speed Anti-Radiation Missile (HARM)

Acquisition Status

• **Program Status:** Sustainment (inventory)

Production: Complete
Current Inventory: 7500
Projected Inventory: 7500
Contractor: Raytheon

• Future Upgrades: None planned for USAF. USN proceeding on Block VI GPS/

INS precision navigation upgrade.

• Purchase Requirements: None

Capabilities/Profile

• **Range:** <60 NM

• Warhead:

• 145 lb Fragmentation Warhead

• Block III - 25,000 steel cubes

• Block IV/V - 14,000 tungsten cubes

• Dimensions:

• 164 Inches (Length)

• 10 Inches (Diameter)

• Weight: 795 Pounds

Functions/Performance Parameters

• Mission Statement: Tactical Anti-Radiation Missile used to destroy or suppress radar threats at standoff range. Block V missile adds limited geo-specificity and provides a significant step in countering rapidly improving threats.

- Accurate (18 meter CEP)
- Adverse Weather Capability
- USAF platform F-16CJ
- Navy platform F/A-18 and EA-6B



AGM-129A Advanced Cruise Missile

Capabilities/Profile

• Range: 2000+ NM

• Armament: W80-1 WH

• Dimensions:

• 20.8 Feet (Length)

• 2.4 Feet (Diameter)

• 10 Feet (Wingspan)

• Weight: 3,700 Pounds

Acquisition Status

• Program Status: Sustainment

• Current Inventory: 410

• Future Upgrades:

- System currently in a 3 phase SLEP to extend missile service life to FY30
- Phase I Risk Identification and Mitigation
 - Fuel Bladder replacement and Nitrile Rubber Element procurement scheduled to begin FY02
 - High risk items identified Laser Doppler, Guidance Unit and Arm/Disarm Device
- SLEP Phase II Cost/Benefits Analysis scheduled to commence Jan 01
- Phase III Implementation scheduled to begin FY02

Functions/Performance Parameters

• Mission Statement: Subsonic, lowobservable air-to-surface strategic nuclear missile with significant range, accuracy, and survivability improvements over the ALCM. The ACM is designed to evade air and ground-based defenses in order to strike heavily defended, hardened targets at any location within an enemy's territory.

• Performance Parameters:

• Speed: 550 MPH



AGM-130 Standoff Attack Weapon

Capabilities/Profile

• **Range:** >30 NM

• Warhead:

Blast/Frag: Mk–84Penetrator: BLU–109

• Dimensions:

• 156 Inches (Length)

• 18 Inches (Diameter)

• Weight: 3000 Pounds

Acquisition Status

• **Program Status:** Sustainment (inventory)

• **Production:** deliveries through IQFY00

Current Inventory: 300Projected Inventory: 530

Contractor: BoeingFuture Upgrades: None

• Purchase Requirements: None

Functions/Performance Parameters

• Mission Statement: Solid rocket powered GBU–15. Autonomous INS/GPS Mid-Course Guidance provides adverse weather capability. Weapon uses TV or IR Terminal Seeker. Provides only fielded Air Force Standoff Outside Point Defense weapon with a 2,000 pound warhead. Integrated on the F–15E Strike Eagle.

- Precise (<3 meter circular error probable (CEP))
- Adverse Weather Capability
- USAF platform F-15E



AGM-142 HAVE NAP

Acquisition Status

• Program Status: Procurement

• Production: Started FY99

• Current Inventory:

45 Blast/Frag units

• 72 I-800 units

• Projected Inventory:

• 79 Blast/Frag units

• 165 I-800 units

• Contractors: RAFAEL Industries and Lockheed Martin (Precision Guided Systems U.S. [PGSUS])

• Future Upgrades: N/A

• Purchase Requirements: N/A

Capabilities/Profile

• **Range:** >50 NM

• Warheads:

• Blast/Frag: 750 lb.

• Penetrator: 800 lb. (I-800)

• **Dimensions:** 16 Feet Long x 21 Inches

Diameter

• Weight: 3,000 Pounds

• Propulsion: Solid fuel rocket motor

• Seeker: TV and IIR

• Weapon Control: Video and Command

Data Link

• A/C Capability: B-52H, 3 Missiles per

aircraft and One Data Link Pod.

Functions/Performance Parameters

• Mission Statement: The HAVE NAP is a 3,000 lb. air-to-surface, man-in-the-loop, precision guided, standoff missile, powered by solid propellant rocket motor, and launched from a B–52H. Specifically, procured to provide B–52s an interim precision stand-off weapon capability, HAVE NAP inventory is programmed to "phase out" as USAF's advanced stand-off precision weapons (JSOW, JASSM) enter the Bomber inventory.

- Accurate (<3 meter circular error probable (CEP))
- Adverse Weather Capability
- USAF B-52H Bomber Compatible
- Autonomous midcourse inertial navigation feature is insensitive to GPS jamming.



LGM-30G Minuteman III

Acquisition Status

• **Program Status:** Fielded; two ACAT 1 modifications underway

Guidance Replacement Program (GRP)

• **Production:** Continues through FYDP

• Projected Inventory: 652 units

• Contractors: Boeing

Propulsion Replacement Program (PRP)

• **Production:** Begins in FY01, continues through FYDP

• Projected Inventory: 607 units

• Contractors: Thiokol, CSD, Aerojet

Capabilities/Profile

• **Range:** 6,000+ Miles

• **Armament:** 1 - 3 MK12/12A RVs

• **Propulsion:** Three stage solid fuel (liquid PBV), hot launch

• Dimensions:

• 59.9 Feet (Length)

• 5.5 Feet (Diameter)

• **Weight:** 79,432 Pounds

• Treaty Implications:

• START I sublimit - One MM wing to download to single reentry vehicle (SRV)

• START II eliminates MIRVed systems - -

SRV for entire force

• **Deployed:** Malmstrom AFB, Minot AFB, FE Warren AFB

Functions/Performance Parameters

• **Mission Statement:** Strategic weapon system using a ballistic missile of intercontinental range.

• Performance Parameters:

• Speed: 15,000 MPH at burnout



Medium Launch Vehicles

Capabilities/Profile • Lift capability:

geosynchronous transfer orbit • Delta II —capable of lifting over 4,010 lbs

• Atlas II— capable of lifting 6970 lbs to

- to geosynchronous transfer orbit
- Launch Sites:
 - Atlas II—Launch Complex 36 A/B Cape Canaveral, FL, Space Launch Complex 3E Vandenberg AFB, CA
 - Delta II—Launch Complex 17 A/B, Cape Canaveral, FL; Space Launch Complex 2W, Vandenberg AFB, CA

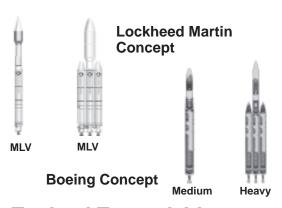
Acquisition Status

- Program Status: Production
- Production: Last launch scheduled for FY05
- Inventory:
 - 19 Delta II missions remain
 - 7 Atlas II missions remain
- Contractors:
 - Atlas II Lockheed Martin, Denver, CO
 - Delta II Boeing Huntington Beach, CA
- Future Upgrades: None planned
- Purchase Requirements: All vehicles under production, launch operations remain

Key Performance Parameters

- Mission Statement:
 - The Atlas space launch vehicles provide launch capability for DoD's Defense Satellite Communication System constellation and National Reconnaissance Office payloads
 - The Delta II launch vehicle provides a medium space lift capability to support the Global Positioning System constellation, the Space Test Program, and National Reconnaissance Office (GeoLITE) systems.
- Performance:

• Delta II: 35/36 = 97 percent • Atlas II: 7/7 = 100 percent



Evolved Expendable Launch Vehicle (EELV)

Acquisition Status

- **Program Status:** Milestone II approved Oct 98
 - Two \$500M Other Transaction Agreements (OTA) for Development effort awarded to The Boeing Company and Lockheed Martin Astronautics
 - Two Firm Fixed Price contracts awarded for Initial Launch Services (ILS) FY02-06 for 28 launches
 - Boeing 19 launches for \$1.38B
 - Lockheed Martin 9 launches for \$649M
 - Program on track for first government medium launch FY02; first government heavy launch FY03
 - Commercial launches anticipated FY01

Capabilities/Profile

- Mission: Partner with industry to develop a national launch capability that satisfies medium and heavy lift requirements for DoD, National, and civil user
- Replaces current Delta, Atlas, and Titan space launch vehicles (FY02-20)
- Expected savings of more than 30% exceeds 25% ORD goal
 - Equates to \$5-10B savings through 2020
- Purchasing firm fixed priced commercial launch services (CLS)
 - Competition for life of program
- Enhances U.S. industrial base, poises two competitive launch vehicle families to capture increased domestic and international commercial market share

	Threshold	Objective
 Standardization 		
Launch Pad	Single Pad	Single Pad
 Payload interface 	Std by Class	Std for all
 Mass to Orbit 		
 Semi-Sync 	2,500-4,725	+15%
• GTO	6,100-8,500	+15%
 Polar-LEO 	41,000	+5%
• GEO	13,500	+5%
 Reliability 	98%	>98%



Titan Space Launch Vehicles Program

Acquisition Status

- Program Status: Production and Launch
- **Production:** Factory Line began shutdown in FY99
- Inventory:
 - Titan IV 11 launch vehicles remain
 - Titan II 6 launch vehicles remain
- Contractors:
 - Titan IV/II; Lockheed Martin, Denver, CO
- Future Upgrades: None planned
- Purchase Requirements: All vehicles under production, launch services remain

Capabilities/Profile

- Lift capability:
 - Titan IVB capable of lifting 12,700 lbs to geosynchronous orbit; 47,800 lbs to polar low earth orbit
 - Titan II capable of lifting over 4,200 lbs to polar low earth orbit

• Launch Sites:

- Titan IVB Launch Complex 40 Cape Canaveral, FL, Space Launch Complex 4E Vandenberg AFB
- Titan II Space Launch Complex 4W, Vandenberg AFB, CA

Functions/Performance Parameters

- Mission Statement:
 - Titan IV provides heavy lift capability to deliver the Nation's highest priority satellites into orbit from Cape Canaveral AS, FL, and Vandenberg AFB, CA. Remaining payloads include Defense Support Program, Milstar, and National Reconnaissance Office
 - Titan II provides medium lift capability from Vandenberg AFB using 14 refurbished Titan II ICBMs. Remaining payloads include Defense Meteorological Support Program, National Oceanic and Atmospheric Administration, and Space Test Program

• Performance:

- Titan IVA/B: 25/28 = 89 percent
- Titan II: 8/8 = 100 percent



Rocket Systems Launch Program (RSLP)

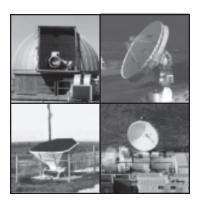
Capabilities/Profile

- Store Deactivated ICBM Motors:
 - \$3 Billion (\$CY99) in Launch Assets
- Perform Aging Surveillance on stored motors
- Provide Cost Reimbursable Launch Services for DoD Flight Tests:
 - Provide Payload Integration Services
 - Refurbish and Transport Motors/Boosters
 - Conduct Launch

Acquisition Status

- Inventory: Over 1,250 stored motors
- Contractors:
 - Orbital/Suborbital (Long-range):
 - Orbital Sciences (Phoenix, AZ)
 - Sounding Rocket:
 - Coleman Research (Orlando, FL)
 - Orbital Sciences (Phoenix, AZ)
 - Space Vector (Chatsworth, CA)
 - Advisory & Assistance:
 - TRW (Albuquerque, NM)

- Single DOD agency providing launch vehicle support for the three services on a cost reimbursable basis
- Over 550 launches since 1962
- Does \$50 Million (\$CY99) in Reimbursable Launch Business Per Year - Represents about \$40 Million in Launch Cost-Avoidance for Our Customers



Spacelift Range System

Acquisition Status

• Program Status: EMD and procurement

• Production: Ongoing

• Current Inventory: Eastern and Western Ranges

• Projected Inventory: Same

• Contractors:

· Lockheed Martin

Raytheon

• Harris

• **Future Upgrades:** GPS Metric Tracking; Fiber-Optic Networks; SATCOM

• Purchase Requirements: NA

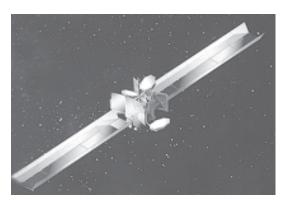
Capabilities/Profile

- Spacelift Range System (SLRS) comprised of:
 - Western Range at Vandenberg AFB, CA
 - Eastern Range at Patrick AFB, FLA
- Current SLRS assets are based on 1950s/ 1960s technology
 - Inefficient
 - Costly
 - Manpower intensive architecture
- Range Standardization and Automation (RSA) is a long term, multi-phased modernization of SLRS
 - Reduces operating costs
 - Improves capacity and reliability

Functions/Performance Parameters

• Mission Statement: Provide responsive, reliable, and cost effective launch scheduling, communications, tracking, flight analysis, and emergency termination for government and commercial space launches and ballistic missile tests

- Launch Coverage all required launch azimuths
- # Vehicles supported per launch 1 expendable launch vehicle, 1 ICBM, or 2 SLBMs
- Risk to public < aircraft overflight
- Simultaneous flight termination capability
- 1 expendable launch vehicle or 2 test missiles



Advanced EHF

Acquisition Status

• Program Status: System Definition

• ORD I JROC approved: Apr 99

• MS I DAB: Apr 99

• Satellites on Orbit: 0

• Satellites in Development: 5

Contractors:

• Dem Val: Hughes & TRW

• Sys Def: Hughes & Lockheed Martin

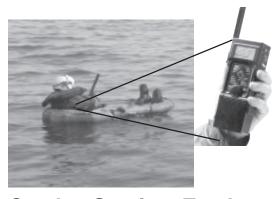
• Future Upgrades: N/A

• Purchase Requirements: 4 and 1spare

Capabilities/Profile

- **Anti-Jam Protection:** Support users exposed to fixed, transportable and mobile jammers.
- Nuclear Protection: Provide assured comm for critical networks supporting critical functions
- Access and Control: Provide users ability to plan, control and reconfigure apportioned resources
- **Interoperability:** Operate with Milstar through transition to AEHF system; Support joint warfighter comm among EHF terminals
- Coverage: 24 hrs between 65 degrees north & south
- Capacity: Threshold: 229 Mbps uplink & 306 Mbps downlink. Objective: 1.2 Gbps uplink and downlink

- Mission Statement: Replenishes capability currently provided by the Milstar system with additional capability as required by the MILSATCOM Capstone Requirements Document
 - Provides more capacity than Milstar
 - Will be cheaper to acquire than Milstar
 - Will launch on EELV (vice expensive Titan)
- Mission Parameters:
 - Low Probability of Intercept (LPI)
 - Low Probability of Detect (LPD)
 - Low Data Rate (LDR) increased to 19.2 Kbps
 - Medium Data Range (MDR) increased to 8 Mbps



Combat Survivor Evader Locator System

Acquisition Status

• **Program Status:** EMD-completing development

• **Production:** Full Rate begins in FY03

• Current Inventory: 0

• Projected Inventory: 23,450

• Contractors:

• Boeing North America (Prime)

• RACAL (UHF/VHF Module)

Alliant Tech (GPS/SAASM)

• Future Upgrades: Air to Ground Data Link Capability, Commercial Satellite Communication

• **Purchase Requirements:** 21,577 remain to be purchased beyond FYDP

Capabilities/Profile

• Precision GPS positioning/navigation

• GPS Accuracy: 44 meters and improving

• OTH 2-way secure data transmission

• LOS voice

• NSA approved security

• LPI/LPD: One way secure

Global coverage

• Time From Transmit to JSRC Receive:

 \leq 5 min

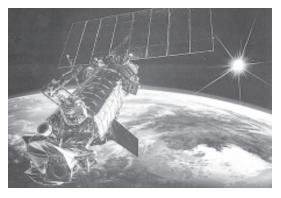
• Battery: 19 days under normal operations

• **Dimensions:** 3 3/4 Inches (Width)

8 Inches (Length) 1 1/2 Inches (Depth)

• Weight: 32.5 ounces

- Mission Statement: A Joint program with Air Force lead to provide enhanced Combat Search and Rescue (CSAR) communication and location capability by replacing antiquated survivor radios (PRC-90/112) with current and emerging technologies in a new end-to-end system. The system will be used by all the Services and DoD, and, potentially, non-DoD government agencies.
- **Performance Parameters:** Performance features include a new hand held radio which incorporates:
 - 2-way, secure over-the-horizon messaging
 - Line-of-sight voice
 - Near real-time geopositioning
 - Authentication of evader identity/ verification of condition
 - Low probability of intercept/detection
 - Potential integration of commercial satellite systems capabilities



Defense Meteorological Satellite Program (DMSP)

Capabilities/Profile

	Threshold/	
KPPs	Baseline	Actual
Satellite Mean Mission Duration	30 mos	42 mos
Primary Sensor Global Resolution Theater Resolution	2.78 km 0.56 km	2.78 km 0.56km

Schedule All APB Milestones have been met

Acquisition Status

• Program Status: Operational Sustainment

Requiring Services: All
Production: FY83-FY99
Current Inventory: 6
Projected Inventory: 6

• Contractors:

• Lockheed Martin (Spacecraft)

• Aerojet, Northrop Grumman, Hughes (Instruments)

• Future Modification: Solid State Data Recorders

• Purchase Requirements: None

- Mission Statement: The mission of DMSP is to provide an enduring and survivable capability, through all levels of conflict, to collect and disseminate global visible and infrared cloud data and other specialized meteorological, oceanographic, and space environment data required to support worldwide DoD operations and high-priority national programs.
- Performance Parameters: DMSP utilizes instruments that sense surface and atmospheric radiation in the visible, infrared, and microwave bands. In addition, DMSP flies instruments that measure space environmental parameters. Critical regional data is broadcast directly to user terminals in theater to support tactical missions. Global data is downloaded to processing centers to support both tactical and strategic missions.

^{*} The DMSP program will cease operations late next decade at the end of the final DMSP satellite's life. Thereafter, DoD's requirements will be fulfilled by the joint DoD/DOC/NASA NPOESS program.



Defense Satellite Communications System (DSCS)

Acquisition Status

• **Program Status:** Production, Fielding/ Deployment & Operational Support

• Satellites on Orbit: 5 primary, 5 residual

• Satellites in Development: 4

• Contractors: Lockheed Martin (Missile and Space), Sunnyvale, CA

• Future Upgrades: Service Life Enhancement Plan (SLEP)

• Purchase Requirements: N/A

Capabilities/Profile

Requirement	Actual
30 Channels on 5	28 Channels on 5
primary satellites	primary satellites

Functions/Performance Parameters

- Mission Statement:
 - Backbone of the MILSATCOM system providing secure and high data rate SHF
 - Users include National Command Authority, Defense Information System Network, Diplomatic Telecommunications Service, White House, Air Force Satellite Control Network, and Service ground mobile forces

Mission Parameters:

• Provides worldwide, responsive wideband and anti-jam satellite communications supporting strategic and tactical C3I requirements



Defense Support Program

Capabilities/Profile

• Satellites: Classified number of geosynchronous earth orbit satellites

• Range: N/A

• Dimensions: N/A

• Weight: N/A

• Magazine: N/A

• Lifetime: N/A

Acquisition Status

• Program Status: Operational

• Unit Assignment: USSPACECOM

• **Current Inventory:** On-orbit inventory plus 4 in storage awaiting launch

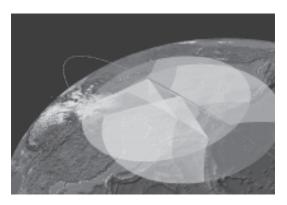
• **Projected Inventory:** 5 awaiting launch (1 to be delivered 2QFY00)

- Contractors:
 - TRW
 - Aerojet

• Current Upgrades:

- Under Space Based Infrared System (SBIRS) program Increment 1, all DSP mission processing is being consolidated at a single CONUS location, with IOC in 3QFY00, allowing the closure of overseas bases
- **Future Upgrades:** Transition to SBIRS space constellation begins in FY04

- Mission Statement: The Defense Support Program is a space based infrared satellite system providing global coverage and warning of ballistic missile launches, nuclear detonations, and other events
- Performance Parameters: DSP provides:
 - Near-real time detection and reporting of missile launches against US and/or Allied forces, interests, and assets worldwide
 - Near-real time detection and reporting of endoatmospheric (0-50km), exoatmospheric (50-300km), and deep space (<300km) nuclear detonations worldwide



Discoverer II

Acquisition Status

- Program Status: Technical Demonstration
- SAE & PEO: SAF/AQ & DARPA
- **Funding:** Equal <u>development cost</u> shares between AF, NRO, and DARPA
- **FY04/05 Demo:** Two satellites and tactical ground station (Army TES)
- Mission Needs: Future operational system utility defined by AF/XOR-led Joint Concept Development Group-membership includes AF, Army, Navy, USMC, CIA
- Contractors: Lockheed Martin, Spectrum Astro, TRW
- **Schedule:** Concept Definition contract awarded in Feb 99.

Capabilities/Profile

- **Orbit:** 2 satellites, Low Earth Orbit, 770 km altitude
- On Orbit Demonstration Duration: 1 Year, FY04-FY05
- Payload: Phased array radar payload for:
 - Ground Moving Target Indication
 - Synthetic Aperture Radar Imagery
 - Precision Digital Terrain Elevation Data
- Tasking, Processing, Exploitation, Dissemination: Direct downlink, designed for theater based tasking & data processing compliant with communication link and imagery processing standards
- Launch: Evolved Expendible Launch Vehicle
- Operations: Day/night, all weather capable

- Mission Statement: Discoverer II is an onorbit technical demonstration recommended by the Defense Science and AF Scientific Advisory Boards. Program develops/matures technology that will enable a cost effective acquisition of a constellation of 24 or more for tactical surveillance and targeting in a followon program. Supports Air Force FY05/06 decision on a mix of air and space platforms for post-2010 surveillance operations.
- Performance Parameters: The 2 satellites built under the Discoverer II program are not operational prototypes but will have technology legacies that will migrate to an operational system. Exact surveillance capabilities are subject to technical tradespace considerations; these will be evaluated during the Concept Definition phase of the Discoverer II program (Feb 99 Sept 00).



Global Broadcast System (GBS)

Acquisition Status

- Program Status:
 - GBS Phase 2 MS II, Nov 97
 - UFO-10 launch: Nov 99
- Payloads on Orbit: 2 GBS Phase 2
- Payloads in Development: 1 GBS Phase 2
- Contractors: Raytheon (GBS Phase 2)
- Future Upgrades: Wideband Gapfiller and Advanced Wideband systems
- **Purchase Requirements:** GBS PH 2 3 satellite primary injection facilities, services purchase receive terminals.

GBS Phase 2 Key Performance Parameters

RequirementThresholdCoverage65S - 65NSpot Beams (per Sat.)2500NM; 1 2000NMSimultaneous Uplinks1 PIP; 1 TIPSecurityunclas - TS/SCITerminal OpsF/T GRT; SRT & SSRT

Objective 5S - 65N 2 500NM; 1 2000NM 1 PIP; 3 TIP unclas - TS/SCI F/TGRT:SRT &SSRT

Definitions

F/T GRT - Ground Receive Terminal

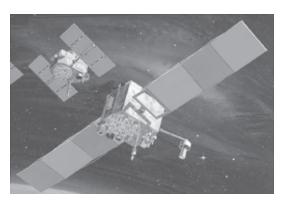
SRT - Ship Receive Terminal

SSRT - Submersible Ship Receive Terminal

PIP - Primary Injection Point TIP - Theatre Injection Point

NOTE: Gapfiller and Advanced Wideband architectures known, specific ORDs yet to be written.

- Mission Statement:
 - **GBS Phase 2:** Provide efficient high data rate broadcast capability between many distributed information sources and warfighters using small, inexpensive terminals.
- Mission/Performance Parameters:
 - **GBS Phase 2:** 96 Mbps/satellite, Wide area and spot beams, 4 channels.



Global Positioning System (GPS)

Acquisition Status

- Program Status: Operational
 - Next IIR Launch Apr 00
 - First IIF Launch IQFY05
- **Unit Assignment:** 2SOPS, Shriever AFB, CO
- Production: Ongoing
- **Current Inventory:** 27 operational satellites; 24 required
- Contractors:
 - Block II/IIA Boeing
 - Block IIR LMMS
 - Block IIF Boeing
- Future Upgrades: Control and Space Segment Modernization, New Military and Civil Signals, User equipment upgrades, Navigation Warfare (Navwar)

Capabilities/Profile

- 24 Satellite constellation
- 6 Orbital Planes
- Altitude: ~10,898 miles
- 12 Hour Orbit
- 3 Segments:
 - Space
 - Control
 - User
- · Secondary Mission
 - Nuclear Detonation (NUDET) Detection System (NDS)

- Mission Statement: Provides highly accurate time and three dimensional position and velocity information to an unlimited number of users anywere on or above the surface of the earth, in any weather
- Performance Parameters:
 - Constellation Sustainment: 24 satellites
- Accuracy*
 - Standard Positioning Service: 100 meters
 - Precise Positioning Service: 16 meters
 - Timing: 100 nanoseconds

^{*} User accuracy is dependent on receiver type and number of satellites acquired



Integrated Tactical Warning/ Attack Assessment (ITW/AA)

Acquisition Status

- Program Status: Sustainment
- Units of Assignment: USSPACECOM, USSTRATCOM, NORAD
 - NORAD Cheyenne Mountain Complex (NCMC), ICBM Radars (BMEWS), SLBM Radars (PAVE PAWS), Mobile Consolidated Command Centers (MCCCs), Alternate Missile Warning Center (AMWC), AFSPACE SOC
- Production: N/A
- Current Inventory: 3 BMEWS, 2 PAVE PAWS, 1 Perimeter Acquisition Radar Characterization System (PARCS)
- Contractors: Kaman Sciences, Lockheed Martin
- Planned Upgrades: NORAD/ USSPACECOM Warfighting Support System (N/UWSS), Clear Radar Upgrade (CRU)

Capabilities/Profile

• **Radar:** 6 Radars (5 phased array, 1 mechanical)

• Command Centers: 2 fixed, 2 mobile

• Range: Worldwide

• Dimensions: Varies by site

• Weight: N/A

Functions/Performance Parameters

• Mission Statement: The Integrated Tactical Warning/Attack Assessment System (ITW/AA) *integrates* and *correlates* missile launch, space object orbit, and air surveillance information to *assess* the nature of an enemy attack and issue *warnings* to the President of the United States, the Prime Minister of Canada, and warfighting CINCs

- Cheyenne Mountain Complex (CMC) is the C⁴ heart of the ITW/AA system
- Cheyenne Mountain Upgrade declared fully operational on 29 Oct 98
- MCCCs provide C2 continuity to CINCs in event of primary facility incapacitation



Milstar

Acquisition Status

• Program Status: EMD

• Satellites on Orbit: 2 Block I (LDR)

• **Satellites in Development:** 3 Block II (LDR/MDR)

• Contractors:

- Lockheed Martin, Missiles and Space (Prime)
- Hughes, TRW (Major Subs)
- Future Upgrades: Advanced EHF Satellites will replenish Milstar satellites with first launch in FY 06
- Purchase Requirements: N/A

Capabilities/Profile

- Capacity:
 - LDR: 75 to 2400 BPS; Uplink freq. EHF at 2 GHz bandwidth; Downlink freq. SHF at 1GHz bandwidth
 - MDR: 4.8 to 1544 kBPS; Uplink freq. EHF at 2 GHz bandwidth; Downlink freq. SHF at 1GHz bandwidth
- Protection:
 - Low Probability of Intercept/Detection (LPI/D)
 - Anti-Jam (AJ)
 - Anti-Scintillation (AS)

- Mission Statement:
 - Provides NCA and CINCs with assured, world-wide C2 for tactical and strategic forces.
 - Program will specifically:
 - Maintain operations support for satellites 1 & 2
 - Complete development and launch satellites 4-6 in FY00/01/02
 - Complete upgrade of mission control facilities to support medium data rate operations
- Mission Parameters: LPI/D, AJ, and AS protected communications at low and medium data rates (LDR and MDR)



Milster CPT



SMART-T



GBS Terminal



GMT

MILSATCOM Terminals

Acquisition Status

- **Program Status:** Continue development, procurement, upgrade and sustainment efforts
 - Milstar CP upgrade, install & integration
 - SMART-T and SCAMP IOC & delivery
 - DAMA air & ground produce and install
 - GBS production and deployment

• Emerging/Future Development

- Air Force Terminal Architecture
- Command Post Terminal Replacement
- Airborne Wideband Terminal (AWT)
- Ground Multiband Terminal (GMT)
- Current Inventory: Includes ground and airborne, fixed, transportable and airborne
 - Narrowband/UHF- 1646+
 - Wideband/SHF- 297
 - Protected/EHF- 664
- Contractors: Multiple
 - Raytheon, Marlboro, MA/St. Pete, FL
 - · Rockwell, Richardson, TX

Capabilities/Profile

- Air Force's primary source for current and emerging terminal acquisition, architecture, development, procurement, and operational sustainment of terminals that provide global strategic comm connectivity for NCA, nuclear forces, deployed, tactical, and various DoD and various U.S. government users
 - Airborne Wideband Terminal (developing)
 - AF Command Post Terminals/replacement
 - Army developed SMART-T
 - Army developed SCAMP
 - Airborne Integrated Terminal (AIT)
 - Ground and airborne DAMA
 - Global Bcst Service (GBS) terminals
 - Ground Multiband Terminal (developing)
 - Defense Satellite Comm System (DSCS)

NOTE: The profile above is based on preliminary study results for an operational SBL system concept. In depth architecture studies are being conducted to determine the best concept and constellation for a directed energy boost phase intercept (BPI) system.

- Mission Statement: Develop, procure, deploy, and sustain multiband SATCOM terminals utilized by Air Expeditionary Forces (AEF), SIOP, CINCs, and other users to communicate over current and emerging military and commercial satellite systems
- Performance Parameters:
 Communications connectivity in the following frequency bands
 - Narrowband/UHF- Secure, mobile,
 DAMA access; transmitted via UHF
 Follow-On (UFO) and Milstar UHF AFSAT
 - Wideband/SHF- C, X, Ku, and GBS Ka RX bands, high data rate; transmitted via DSCS, GBS, Wideband Gapfiller, and Advanced Wideband
 - Protected/EHF- Low data rate 75-2400 bps, high data rate 4.8-1.544 kbps, secure, nuclear hardened, AJ/AS, LPI; transmitted via Milstar, UHF Follow-On (UFO), Advanced EHF, and polar-hosted EHF packages



Polar MILSATCOM

Acquisition Status

• **Program Status:** EMD phase. Design, test, and launch of next generation packages.

• Satellites on Orbit: 1

• Satellites in Development: 2

• Contractors: Classified

• Future Upgrades: N/A

Capabilities/Profile

- **Coverage:** North polar region. 24 hours/day required (takes two satellites).
- Compatibility: Milstar compatible Low Data Rate (LDR) service. (Milstar terminals require software mod for doppler). Supports 11 specific threshold networks.
- **Integration:** EHF packages on three classified host satellites. Polar 1 added to earlier generation host, launched Nov 97. Polars 2 and 3 being integrated into design of new generation host.
 - Polar 2 scheduled for FY03 launch, Polar 3 for FY04

- Mission Statement:
 - Provides secure, survivable, communications connectivity supporting peacetime, contingency, and wartime operations in the north polar region
 - Supports Independent Submarine Operations, Maritime Task Force Operations, Special Operations Forces, Strategic Force Reconnaissance, Single Integrated Operations Plan, Tactical Warning/Attack Assessment, and Intelligence Collection/Dissemination Activities
- Mission Parameters: Same as Milstar LDR connectivity: 75-2400 bps data rates with Low Probability of Intercept/Detection (LPI/D), Anti-Jam (AJ), and Anti-Scintillation (AS) protection



Wideband Gapfiller System (WGS)

WGS Key Performance Parameters

KPPs are in draft as part of the Operational Requirements Document (ORD), which is currently in coordination.

Acquisition Status

- Program Status:
 - Satellite 1 launch in Nov 03
 - Satellite 2 launch in Nov 04
 - Satellite 3 launch in May 05
- Satellites on Orbit: 0
- Satellites in Development: 3
- Contractors: N/A
- Future Upgrades: Advanced Wideband

System

• Purchase Requirements: 3 Satellites

- Mission Statement:
 - High data rate satellite broadcast system meant to bridge communication gap between current systems DSCS and GBS and the Advanced Wideband System.
- Mission/Performance Parameters:
 - Wideband communications (X Band frequency) and point-to-point service (Ka Band frequency)



National Polar-orbiting Operational Environmental Satellite System (NPOESS)

Capabilities/Profile

Baseline	Actual
5km mapping accuracy	TBD
1.0km res 1.0km res	TBD TBD
20km res	TBD
1.0km res	TBD
Mar 97	Mar 97
Feb 02	TBD
	5km mapping accuracy 1.0km res 1.0km res 20km res 1.0km res

Acquisition Status

• Program Status: Program Def & Risk Red

• **Requiring Services:** All - NPOESS consolidates separate defense and civil polar-orbiting meterological satellite systems into a single national system.

Production: FY02-FY15 Current Inventory: None

• Projected Inventory: Five total

• Contractors:

• TRW, Hughes, Lockheed Martin (Prime)

• Hughes, Ball Aerospace, ITT, Saab Ericsson (Instruments)

• Future Upgrades: TBD

• Purchase Requirements: None

- Mission Statement: The NPOESS
 Program is required to provide, for a period of at least 10 years, a remote sensing capability to acquire, receive at ground terminals, and disseminate to processing centers, global and regional environmental imagery and specialized meteorological, oceanographic, climatic, land surface, space environmental and other data supporting DoD peacetime and wartime missions, as well as civil mission requirements.
- Performance Parameters: NPOESS will utilize instruments that sense surface and atmospheric radiation in the visible, infrared, and microwave bands. In addition, NPOESS will fly a suite of instruments that measure space environmental parameters. In all, NPOESS will measure 61 distinct environmental parameters such as soil moisture, cloud levels, sea ice, ionospheric scintillation, and more.



Spaced Based Infrared System (SBIRS)

Acquisition Status

• Program Status: SBIRS High is in Engineering, Manufacturing, and Development phase. SBIRS Low is in Program Definition and Risk Reduction (PDRR) phase, about to enter Program Definition phase.

• Projected Inventory:

- SBIRS High consists of 4 Geosynchronous (GEO) Satellites and 2 Sensors in Highly Elliptical Orbit (HEO).
- SBIRS Low has a preliminary design of 27 Low Earth Orbit (LEO) satellites, including 3 on-orbit spares.

Contractors:

- Lockheed Martin (GEO, HEO, Sys-of-Sys)
- SBIRIS Low PDRR Contractors
 - TRW
 - Spectrum Astro

Capabilities/Profile

- Mission Areas:
 - Missile Warning- North America & Theater
 - Theater Missile Defense
 - National Missile Defense
 - Battlespace Characterization
 - Technical Intelligence

• Key Performance Parameters:

- Coverage
- Minimum Threat
- Report Time
- Probability of Warning
- Data Availability
- Initial Post Boost State Vector
- Initial Post Boost Report

- Mission Statement: SBIRS consolidates the national and DoD's infrared detection systems into a single overarching architecture that fulfills the nation's security needs in the areas of missile warning, missile defense, technical intelligence, and battlespace characterization.
- Performance Parameters: SBIRS will provide enhanced capabilities necessary to combat evolving theater and ballistic missile threats. SBIRS is an integral part of the AF and DoD strategic visions for the nation's security and will provide flexible, affordable, and reliable capabilities across the entire range of military applications.



Space Based Laser

Acquisition Status

• Program Status: Technology Experiment

• Production: N/A

Current Inventory: NoneProjected Inventory: TBD

• Contractors:

Lockheed Martin

TRW

• Boeing

• Future Upgrades: N/A

• Purchase Requirements: N/A

Capabilities/Profile

• Satellites: ~30

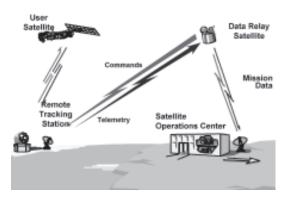
• **Altitude:** ~1000 km • **Range:** >3000 km

• **Dimensions:** TBD • **Weight:** <22000 kg

Magazine: 100 shotsLifetime: 20 years

NOTE: The profile above is based on preliminary study results for an operational SBL system concept. In depth architecture studies are being conducted to determine the best concept and constellation for a directed energy boost phase intercept (BPI) system.

- Mission Statement: SBL concept is envisioned to provide the nation with highly effective, continuous, boost phase intercept option for both theater and national missile defense. SBL could also provide several ancillary mission utilities, such as global surveillance, target designation, and space and air defense.
- Performance Parameters: SBL will provide a highly automated battle management capability and assure human control. The system probability of kill, missile count engagement capability, and detection to shot timeline are still under study. SBL is also planned to provide impact point predictions enabling TMD active and passive defense. SBL will be able to perform launch point detection of missiles by using on-board sensors within a defined focus area or by using cued data and provide data to support accurate kill assessment reports with sufficient accuracy to meet missile negotiation requirements.



Air Force Satellite Control Network

Acquisition Status

- Program Status: Operational/Evol Dvpt
- Unit Assignment: OPS AFSPACECOM DVPT/Sustainment -AFMC
- Current Inventory:
 - 8 Remote Tracking Stations (15 Antennas)
 - 2 Operations Control Centers
- Projected Inventory: No change
- Contractors:
 - Lockheed Martin: CA and CO
 - Allied Signal Corp: Colorado Springs, CO
- Current Upgrades:
 - Antenna replacements to reduce O&M
 - Comm improvements to migrate to DoD standard DISN ATM network
 - Realignment of mission capability from Onizuka AS, CA to Schriever AFB, CO as directed by BRAC 95
- Future Upgrades: Evolutionary development and sustainment to meet ORD requirements

Capabilities/Profile

- Global system of control centers, remote tracking stations and communication links
 - 2 Control Centers (CONUS)
 - 8 Remote Tracking Station locations (worldwide)
- Operate DoD, National, Civil, and Allied satellites
 - Launch and Early Orbit determination
 - Telemetry, Tracking, and Commanding
 - · Anomaly resolution
 - Mission data dissemination
 - Data processing

- Mission Statement:
 - AFSCN mission is to fly operational USAF, National, Allied and R&D satellites
 - Command and control ops, relay mission data and comm
 - Provides launch & early orbit tracking operations support for all major US launches.
 - Resolve operating emergencies with high power uplink
- Performance Parameters:
 - Over 100 satellites supported
 - Over 100,000 contacts per year
 - 100% support of all major US (DoD and NASA) launches



AEOS (3.7M) Telescope, Maui, HI

Space Surveillance Network

Acquisition Status

• Program Status: Operational

• Unit Assignment: USSPACECOM

• Current Inventory: 20 Ground-Based

sites; 1 Space-Based Sensor

• Projected Inventory: 22 w/HAVE STARE

• Contractors:

• Raytheon (Danbury, CT; Sudbury, MA)

• Boeing RTS (Maui, HI)

• Current Upgrades:

• Advanced Electro-Optical System (AEOS) telescope addition to the Maui Space

• Deployment of HAVE STARE Radar to Norway for Deep Space Tracking (2000)

• GEODSS Charged Coupled Device (CCD) camera and Modular Angular Control Systems (MPACS) replacement

• Future Upgrades:

• N/A

Capabilities/Profile

- Ground Sensors:
 - 5 Optical Sites
 - 13 Radar Sites
 - 2 Passive RF Sites
- Satellites: 1 Space-Based visible instrument (built for BMDO to demonstrate mid-course missile surveillance; now an SSN asset)
- Range: Near Earth object tracking to 3000 nm, Deep Space tracking to 22,000 nm from ground-based sensors

• **Dimensions:** Varies by sensor/site

Weight: N/AMagazine: N/ALifetime: N/A

Functions/Performance Parameters

• Mission Statement: The Space Surveillance Network (SSN) detects, tracks, identifies, and catalogs all man-made space objects. Space surveillance is the foundation for the full spectrum of space operations: space control, force enhancement, force support, and force application.

- **Performance Parameters:** The SSN provides:
 - Satellite attack warning
 - Notification of satellite overflight to U.S. forces
 - New foreign launch information
 - Space treaty monitoring
 - Scientific and technical intelligence on foreign space systems
 - Space situational awareness
 - Support to NASA and NRO operations
- The space object catalog contains over 8700 objects (as of Oct 99). Approximately 80% are Near Earth objects, 20% in Deep Space. Much of this data is shared with the United Nations, NASA, our Allies, and foreign launch agencies.